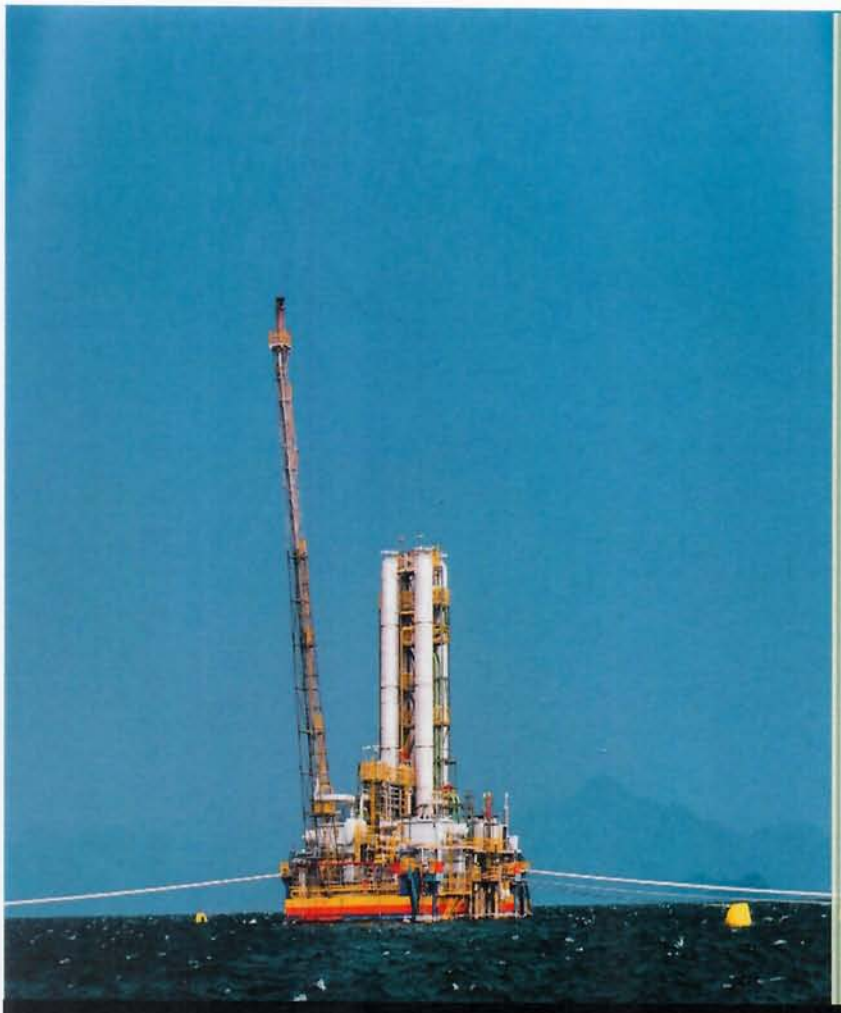
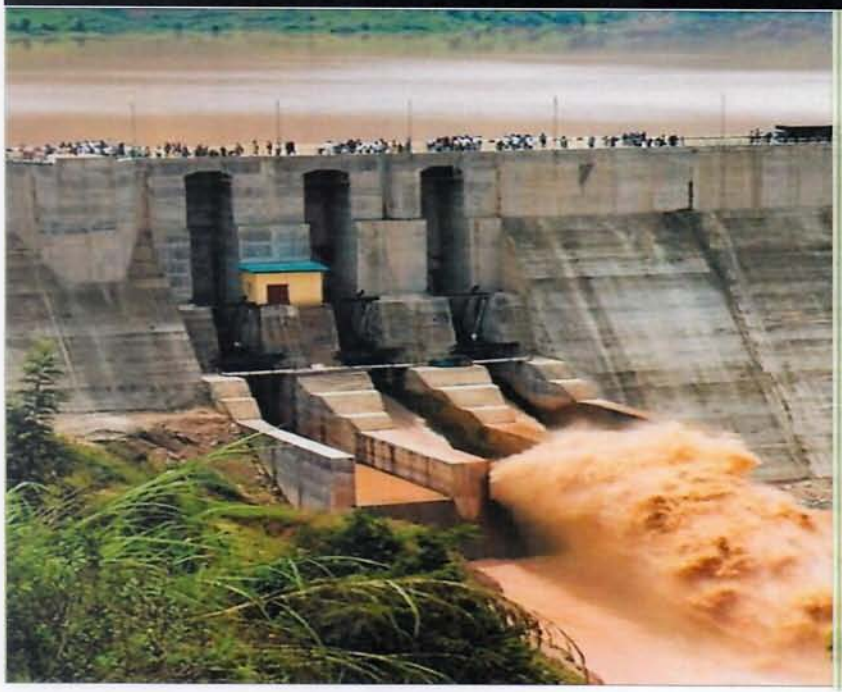


Rwanda Energy Group

REG

RWANDA ENERGY GROUP STRATEGIC PLAN 2019-2024



Foreword by the Chairperson

Energy is the backbone of the economy critical in advancing the social and economic transformation of Rwanda. To this end, the availability of reliable and affordable energy is central to stimulating productive capacity, leading to sustainable economic and social development. In this National strategic endeavor, the Rwanda Energy Group (REG) is a key player and this agenda will shape the strategic direction of REG for the period 2019-2024.

Over the period 2012-2018, electricity generation increased by 72% and access to electricity has improved but is still substantially lower than targeted. Rural households with access to electricity increased from 5% to 27% over the period.

Investments in increasing generation capacity have led to improved availability and reduction in the electricity tariff for industries; however, challenges remain on ensuring reliability and increasing productive demand and thereby optimizing generation investments.

Increased access to electricity has been achieved by policy actions of Government and through efforts in resource mobilization for the sector. Looking ahead over this planning period, government is aiming to attain 100% electricity access for households and productive users by 2024. This will require good planning and investments to have sufficient supply, a balanced and cost optimized energy mix. We believe this is critical in increasing affordable electricity access to the population while at the same time improving National competitiveness in manufacturing and services.

In the National Strategy for Transformation (NST-1), Government has prioritized the attainment of High Quality and Standard of Life that transcends meeting basic human needs to be characterized by, Affordable, reliable and clean energy; Quality education and health care; Modern housing and settlements with environmentally friendly and climate resilient surroundings, these cannot be realized without a well performing electricity supply industry and therefore serious ramifications for REG in this strategic plan.

All the priority areas identified in the NST like Accelerating Job Creation, Increasing Sustainable Urbanization, establishing a Globally Competitive Knowledge Based Economy, Increasing Industrialization driven by high value exports; hinge on REG's performance where our services are a critical ingredient.

As a Board, we are committed to working with Management and staff to ensure that the elaborate plans in place like the Least Cost Power Development, Network Development and Optimization plan; Access to Electricity, are all being implemented in a timely and efficient manner to deliver on the objectives outlined herein. On the institutional front, we shall ensure that governance arrangements are enhanced through deploying modern management systems and technologies and a comprehensive capacity development programme to improve institutional competences to deliver on the commitments in this plan. Through a system of continuous monitoring through the Board committees and Management reviews, the plan will become a living organism in REG and thus retain its relevance and importance.

We are fully convinced that REG will require the continued support of and cooperation from all stakeholders, especially the End-users of energy, Government, Development Partners, Financiers, and Investors in the sector to make this plan a success for the benefit of all. The company stakeholders will be timely informed and engaged as we drive to the envisioned state of the Group; *To be the Leading Regional Provider of Innovative and Sustainable Energy Solutions for National Development.*

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Robert NYAMVUMBA
Ag. Chairman REG Board of Directors

Introduction by The Chief Executive Officer

The Rwanda Energy Group with its subsidiary companies, *Energy Development Corporation Limited* and *Energy Utility Corporation Limited*, was incorporated in July 2014 as part as part of the wider Government reform programme for the Energy and Water sector in Rwanda.

The overarching objective of the reform was to ensure that the sector is expanding the energy supply capacity efficiently to meet the growing demand in the country. REG was therefore tasked to; improve efficiency in operations; attract more investment; improve planning and accountability; and accelerate access to energy services by the population. REG is expected to implement its mandate and to proactively take the necessary decisions in anticipation of and in response to the changing circumstances in the energy supply industry in Rwanda.

We are acutely aware that whilst REG has a Corporate mandate from its shareholders (Government), the performance and consequently the relevance of REG must be informed by the tangible impact, benefits and meaningfulness of its work for the citizens. To this end, REG is committed to ensure the development of the electricity supply infrastructure, while facilitating the affordability of and accessibility to these services to serve the economic interests of all stakeholders to ensure sustainable socio-economic development of Rwanda

The focus of this Strategic Plan reflects a renewed sense of urgency in increasing delivery on the mandate of REG exemplified by adequate, reliable and affordable energy supply services across the entire spectrum of end-users.

The Strategic Plan focuses on improving the planning, and implementation of energy projects appropriate to meet the energy supply requirements and efficiently operating the electricity supply infrastructure to sustainably deliver reliable and affordable energy for the household and commercial usage. In this plan we have articulated SMART Strategic Objectives and relevant initiatives anchored by realistic implementation plans to guide the day to day operations.

This Plan will be guided by **Six** Industry focused objectives;

1. ***Generation*** *- Build a balanced and cost optimized Generation mix sufficient to meet growing Demand.*
2. ***Transmission*** *- Plan and Build infrastructure to ensure timely alignment of current and future Generation with National Demand*
3. ***Distribution*** *- Develop and Operate an Optimized Distribution Network to enhance Utility efficiency and reliability of power supply.*
4. ***Electricity Access****- Achieve 100% National Access to Electricity in 5 yrs. using Grid and Off-grid Solutions*
5. ***Tariff Evolution*** *- Develop a clear Tariff Trajectory with clear milestones based on effective engagement with IPPs, financiers and other stakeholders to achieve affordable tariff*
6. ***Operation & Maintenance*** *- Ensure optimized plant and network operations for excellent service reliability, with most economical plan.*

The key **four** Institutional focused objectives are;

1. ***Corporate Governance*** *- Structure and Equip REG with to competently implement strategy;*
2. ***Communication Strategy*** *- Build an awareness of REG's Products and Services to enlist commitment of Stakeholders to the Vision and Mission*
3. ***Capacity Building*** *- Enhance Staff's professional and technical capacity to support REG consistently deliver on its Mission*
4. ***Commercial Strategy*** *- To serve our customers and ensure their satisfaction through our culture of excellence;*

The strategic plan has been developed in tandem with the policy goals in the National Strategy for Transformation 2017-2024. Along the path of its implementation, any consequential amendments to the Strategic Plan will be fully motivated and communicated to the relevant stakeholders once this becomes necessary.

I am pleased to say that with our team at REG, we are ready and inspired to meet the delivery for next five years.

Ron Weiss

Ron WEISS
Chief Executive Officer

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1 – Background

Rwanda Energy Group (REG) and its subsidiaries, Energy Development Corporation Limited (EDCL) and Energy Utility Corporation Limited (EUCL) were incorporated in 2014 as part of the Government Reform programme for the energy sector. This was aimed at accelerating national electrification, expanding national capacity for energy supply, improving efficiency in service delivery and attracting more investment in the sector. The relative corporate mandates are; *REG Holding provides overall coordination of utility operations and energy investment and development plans* without operational responsibilities. On the other hand, the *EUCL to ensure efficiency in utility operations and end-user service delivery* while the *EDCL is to ensure timely implementation and cost-efficient development of energy projects*.

REG's overall goal ***is to increase electricity access and service reliability for industry and households based on a sustainable and affordable tariff with efficient customer service.***

To this end, a 5-year Strategic Plan (2019 – 2024) has been developed aligned to the National Strategy for Transformation (2019- 2024) and Policy objectives for the sector cognizant of the developments at national, regional and international scenes.

In addition, this Strategic Plan incorporates synthesized conclusions and recommendations from other sector reports that include;

- Strategic Plan and Business Plans- June 2017 *(Indra Sistemas)*,
- Strategic Audit of Rwanda's electricity sector *(IHS)*,
- Least Cost Power Development Plan- January 2017 *(Israel Electric Company)*
- Least Cost Power Development Plan -2015 *(JICA Report)*
- Integrated Resources Planning- 2016 *(Rocky Mountain Institute)*
- Network Review and Technical assessment- 2013 *(Manitoba Report)*
- Network Planning and Design- 2013 (SOFRECO Report)
- Scoping for Kigali 15KV Network Strengthening *(World Bank Distribution Reports)*
- Enterprise Risk Management Framework- 2017 (Price Waterhouse Coopers)
- Rwanda Electricity Sector Access Program- 2009 *(Castalia)*

The REG team conducted a comprehensive review of the above listed reports aimed at harmonizing and consolidating the recommendations therein and aligning them with sector strategic priorities. The purpose is to arrive at a strategic platform that reflects REG's ownership and commitment to the objectives and activities that define the institutional effort going forward.

The consolidation was structured into several categories covering the energy delivery value-chain; These have become the building blocks for this Strategic Plan and have guided the formulation of the strategic objectives outline here below;

- Generation,
- Transmission,
- Distribution,
- Operations and Maintenance,
- Electricity Access,
- Tariffs Evolution
- Corporate Governance/Institutional arrangements
- Communication Strategy
- Capacity Building
- Commercial Strategy
- Financial Strategy

2 - Industry Assessment

A detailed industry evolution and performance assessment over the last 10 years has been done and this reveals that the REG strategic planning process is taking place against a background of some key institutional and sector challenges graphically illustrated in Fig.1 below. Therefore, this strategic plan and choices made thereof clearly seek to enlist the commitment and partnerships from all REG's key stakeholders to systematically and progressively address these challenges.

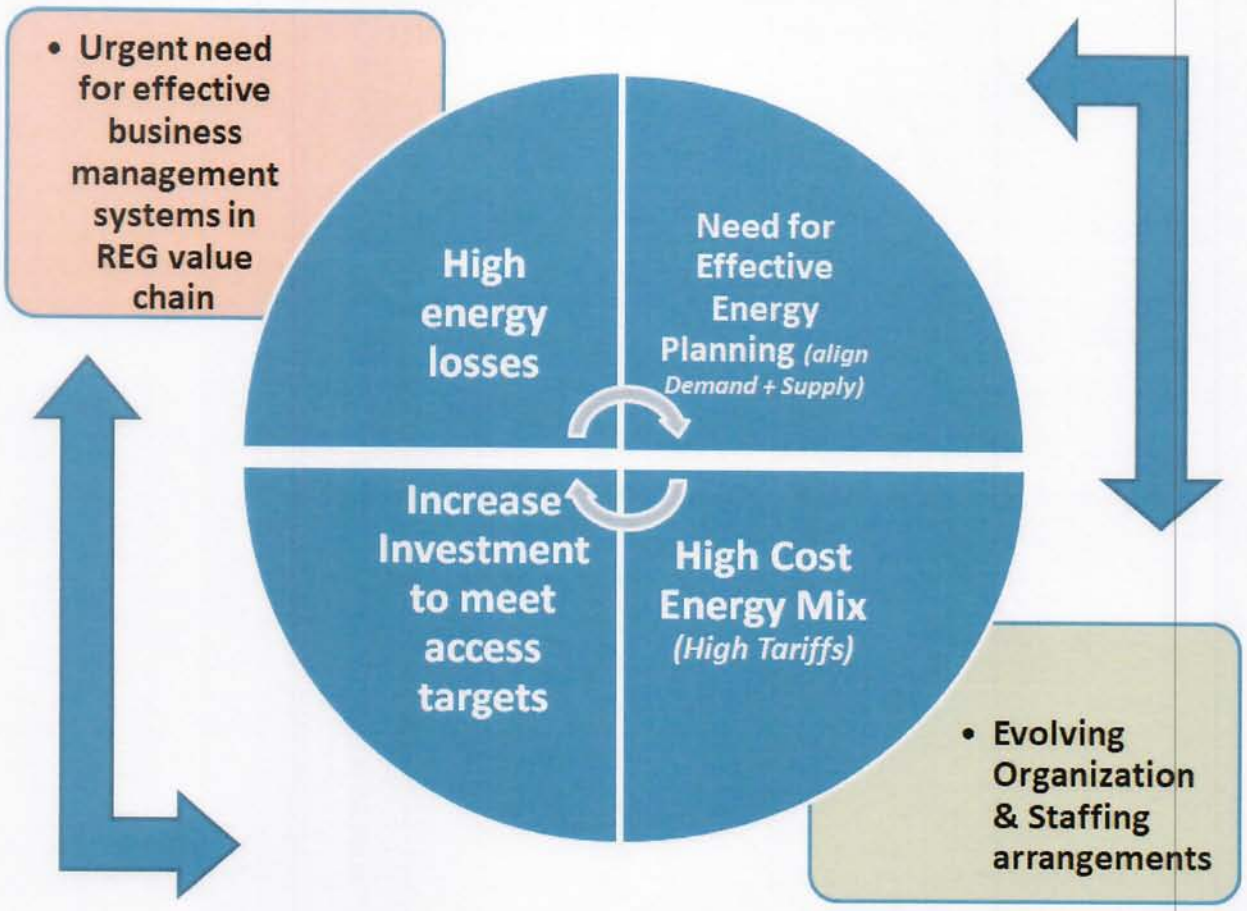


Fig. 1- Key institutional and sector challenges

3 - Stakeholder Expectations and Institutional Response

An assessment of the key REG's stakeholders has been conducted to determine what the key expectations and aspirations are from thereof and thus determine the appropriate REG Response for each key aspect.

REG has diverse stakeholders with different interests and influence on REG and its operations. This summary concentrates on the major stakeholders with significant interest and influence.

Stakeholder	Expectation/Aspirations	REG Response
Government of Rwanda and RURA	Adequate Supply to meet growing National Demand	✓ Expand generation from lower cost sources ✓ Effective regional engagement for supply security and favorable import terms ✓ Effective Demand forecasting
	Affordable Electricity Supply and reduce subsidy	✓ Develop Least Cost Power Development plan ✓ Implement loss reduction strategies ✓ Operate with improving cost efficiency
	High Quality and Supply Reliability	✓ Adhere to Grid Code and established Utility best practice ✓ Implement effective plant and network development & maintenance practices

	Transparency and Accountability	✓ Prepare Timely and comprehensive reports ✓ Establish reliable reporting systems ✓ Adopt International Reporting Standards ✓ Achieve Clean Audits
	Attract Investment in the sector	✓ Facilitate private sector participation ✓ Fulfill commitments for Power supply ✓ Ensure network reliability to optimize system availability
Independent Power Producers (IPPs)	Reliable network for continuous energy off-take	✓ Undertake timely investment & maintenance of Network ✓ Ensure efficient System Operation
	Timely payment of supply invoices as per PPA terms	✓ Ensure sufficient revenue generation ✓ Proper cash flow planning ✓ Ensure systematic cost control
Consumers	Affordable Power Tariffs	✓ Implement loss reduction strategies ✓ Operate with improving cost efficiency ✓ Negotiate lower cost PPAs ✓ Develop cheaper alternative sources of supply
	High Quality, Safe and Reliable Service	✓ Adhere to Grid Code and established Utility best practice ✓ Effective plant/network development & maintenance
	Responsive Customer Service	✓ Accurate, timely billing and collection ✓ Regular Customer engagement ✓ Effective customer communication and awareness programmes ✓ Invest in modern customer management systems
Development Partners	Shared development agenda	✓ Effective stakeholder engagement ✓ Regular Consultation ✓ Share sector investment and development plans
	Transparency and Accountability	✓ Prepare Timely and comprehensive reports ✓ Establish reliable reporting systems ✓ Adopt International Reporting Standards ✓ Achieve Clean Audits
REG Staff & Outsourced Manpower services	Enabling Reward & Other Organizational Policies	✓ Enhance Organizational Policies ✓ Put in place a competitive reward scheme ✓ Implement an effective performance management system
	Training & Development Opportunities	✓ Create Job enrichment and rotation practices ✓ Develop and implement a comprehensive capacity building plan
	Provision of adequate tools and equipment	✓ Invest in modern systems and procedures ✓ Provide the required facilities, tools and equipment

4 – REG's SWOT Analysis

Drawing from an industry development and performance analysis coupled with a review of the REG's stakeholder mapping process, the next stage is to conduct a detailed Strengths-Weaknesses-Opportunities-Threats (SWOT) Analysis. This has enables REG to consider how to build on and maximize the advantage presented by the strengths and opportunities while at the same time, address the weakness and adequately respond to the identified threats. The confluence of these provide a good basis for REG to establish its strategic stand, determine appropriate strategic objectives and the necessary initiatives achieve them.

SWOT Aspect	Strategic Implications	
STRENGTHS	**Advantage**	**REG Response**
▪ Increasing Investment in the Network ▪ Lower cost Base Load plants in generation to Mix ▪ Young and Qualified Staff ▪ Focused mandate for Development and Utility ▪ Increased Investment in modern Business Management systems	▪ Increased capacity to improve service reliability ▪ Optimize plants to reduce cost ▪ Good foundation for building a professional team ▪ Potential for achieving operational excellence	▪ Mobilize resources and execute planned projects ▪ Implement refurbishment and maintenance schedules ▪ Develop and implement comprehensive capacity building programme ▪ Prioritize recruitment for key functions ▪ Enforce usage of new systems
Opportunities	**Advantage**	**REG Response**
▪ Potential to develop new low-cost generation plants ▪ Potential to Increase access through both grid and off-grid solutions ▪ Cheaper imports from the region ▪ Enabling Govt. policy and strategy ▪ Support from Devt. partners ▪ High investor interest in generation	▪ REG can invest in generation to lower cost of generation mix ▪ Two-pronged strategy to achieve Access targets ▪ Mitigate interim supply gaps & reduce tariff ▪ GoR support for this plan assured ▪ Source of grants and low cost investible funds ▪ Scope for JVs and SPVs	▪ Identify and develop priority projects ▪ Establish basis for determination of grid and off-grid interventions ▪ Update access plans ▪ Mobilize resources for access projects ▪ Advocate for timely power import deals guided by least cost generation plan ▪ Share generation and network development plans to mobilize investments
Threats	**Challenges/Risks**	**REG Response**
▪ Foreign currency-based PPAs on Take or Pay basis ▪ Relatively High Tariffs constraining demand ▪ New generation dominated by high cost private capital ▪ Delays in completion of regional projects distorting planning	▪ Increasing cost of service ▪ Difficulty in optimizing capacity and facilities ▪ High end-user tariffs ▪ Costly emergency solutions	▪ Propose favorable standard PPAs ▪ Equip a specialized PPA Team ▪ Advocate for targeted tariffs ▪ Mobilize concessional investment in generation ▪ Ensure effective project management ▪ Effectively engage regional counterparts

Weaknesses	Challenges/Risks	REG Response
▪ Need to streamline sector planning ▪ Relatively High cost energy mix ▪ Inadequate funds for investment ▪ Evolving structures & systems for operational and financial control ▪ Onerous PPA conditions ▪ Absence of an effective performance management system ▪ Old and constrained transmission and distribution ▪ Lack of systematic adherence to utility best practices and standards ▪ Inadequate specialized skills esp. Planning, PPAs, Finance, Project Management, Utility Operations	▪ Prospects of supply disruption ▪ Constraints for universal access and high tariffs ▪ Inefficiency in operations and limited value-for-money ▪ Lost productivity through sub-optimal performance ▪ Poor utility service reliability ▪ Poor quality of supply and high safety risks ▪ Risk to a sustained execution of institutional mandate	▪ Advocate for REG's central role for generation and network planning ▪ Dilute the cost of energy mix with lower cost generation ▪ Engage for mobilization on lower cost investible funds/projects ▪ Advocate for standard and appropriately risk balanced PPAs ▪ Establish systems for organizational performance management ▪ Streamline network development and maintenance procedures ▪ Resource and train staff for specialized skills development

5 - REG Strategic Statements

Vision

To be the Leading Regional Provider of Innovative and Sustainable Energy Solutions for National Development

Mission

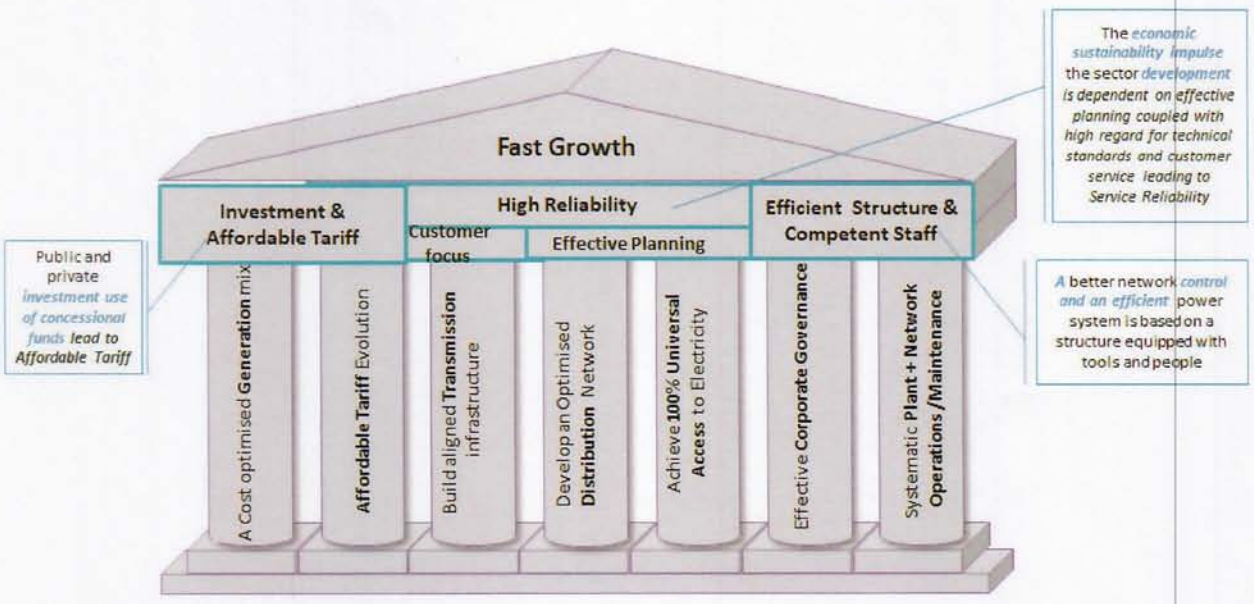
Developing and Providing Reliable and Affordable Energy while Creating Value for Our Stakeholders

Core Values

Integrity, team work, efficiency, sustainability, Respect for People and Customer Orientation.

6 - Strategic Themes and Objectives

REG's overall goal *"Achieve fast electrification levels for industry and household usage based on a sustainable and affordable tariff". This will be achieved through* ***accelerating national electrification, expanding national capacity for energy supply, improving efficiency in service delivery and attract more investment in the sector.***



Strategic Objectives

A Governance structure is in place to ensure that REG structure and resources are enhanced to deliver this plan underpinned by REG's core values. The nine strategic objectives articulated as follows;

i) ***Generation*** *- Build a balanced and cost optimized Generation mix sufficient to meet growing Demand.*

ii) ***Transmission*** *- Plan and Build infrastructure to ensure timely alignment of current and future Generation with National Demand*

iii) ***Distribution*** *- Develop and Operate an Optimized Distribution Network to enhance Utility efficiency and reliability of power supply.*

iv) ***Access****- Achieve 100% National Access to Electricity in 5 yrs. using Grid and Off-grid Solutions*

v) ***Tariff Evolution*** *- Develop a clear Tariff Trajectory with clear milestones based on effective engagement with IPPs, financiers and other stakeholders to achieve affordable tariff*

vi) ***Operation & Maintenance*** *- Ensure optimized plant and network operations for excellent service reliability, with most economical plan.*

vii) ***Corporate Governance*** *- Structure and Equip REG with to competently implement strategy;*

viii) ***Communication Strategy*** *- Build an awareness of REG's Products and Services to enlist commitment of Stakeholders to the Vision and Mission*

ix) ***Capacity Building*** *- Enhance Staff's professional and technical capacity to support REG consistently deliver on its Mission*

7 – Detailed Strategic Objectives and Initiatives to achieve the Plan

7.1 – Generation Plans and Outlook

Strategic Objective (SO1) - **Build a Balanced and Cost Optimized Generation Mix sufficient to meet Growing Demand.**

Rationale

This objective is aimed to address the key challenges:

a) Overriding National objective is to ensure sufficient and reliable energy supply to attract investment and support social transformation

b) Revised targets in installed capacity of 556.01 MW aligned with National Growth targets but current level, < 50% of projects commissioned – thus the need to ensure a balance between energy security and cost

c) Generation costs accounts for over 75% of the total cost of service;

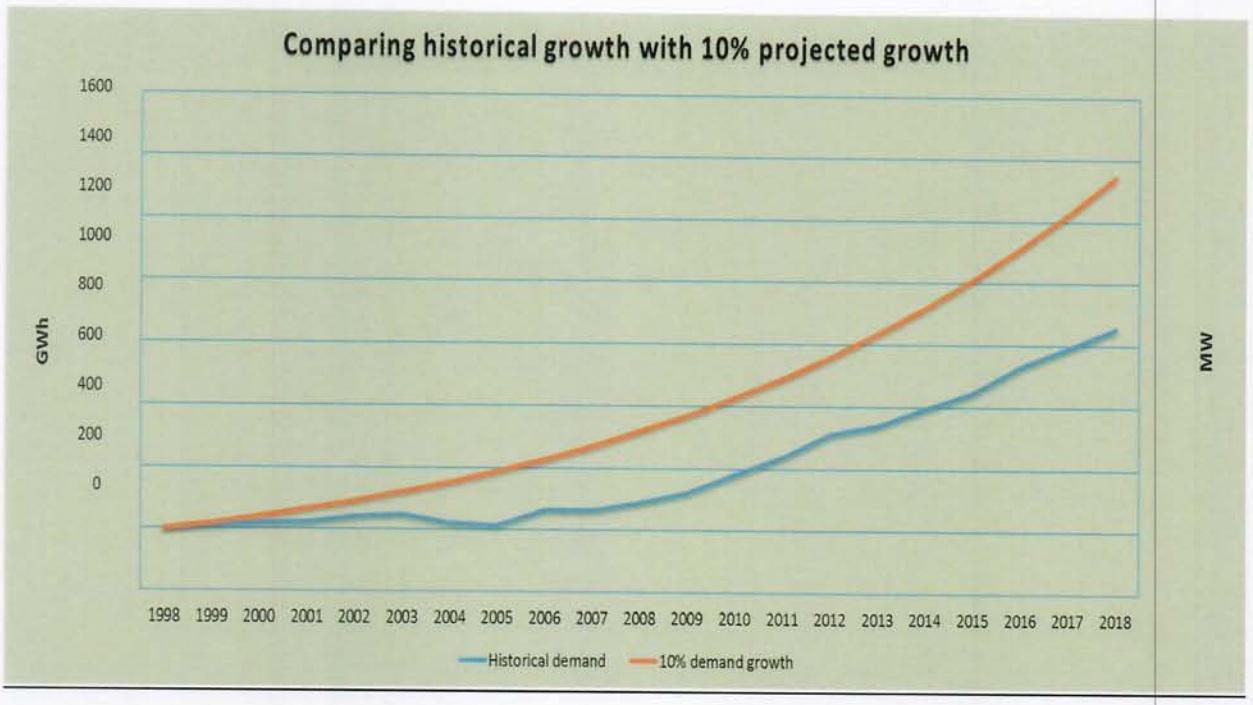
d) Other generation focused challenges include;

- The need for a clear focal responsibility on energy planning
- Resolving a mismatch between demand and supply leading to load-shedding or capacity under-utilization (costly surplus)
- Tackling the high cost energy mix –urgent need for cost dilution
- Inflexible PPAs (take-or–pay) terms- need for flexible PPAs
- Reducing the contribution of commercial finance in generation projects – thus the need for concessional funds lower end-user tariffs
- The need to increase the share of Renewable sources in the energy mix

REG has developed a detailed Least Cost Development Plan that has an in-depth analysis of the demand forecast and the current generation status and alignment of generation pipeline with the candidate projects to be developed over this planning period. The generation assumptions and details herein are extracts from that detailed plan.

Historical & Planned Electricity Demand

- The average electricity demand growth has been on average below 10% in the past 10 years.
- The base case of electricity demand growth is at 10% going forward as it is aligned to the growth in the past.
- We need a demand growth of 15% to meet the generation plan until 2024
- REG needs support by all stakeholders in demand creation to meet the target.



Generation Assumptions

- The Base Case in the generation plan seeks to align the REG Strategic plan with the National Objectives in the 7 -Year National Programme to 2024.
- This is premised on an Annual demand growth of 15% driving the need for increased generation capacity. This Demand is anticipated from Government's accelerated programme in the promotion of industry, commercial and other service activities.
- An alternative case has been modeled (at an annual growth rate of 10 %) to reflect the impact if Demand does not grow at 15%.
- This would translate into excess costs of generation to be met from Government Subsidy

Generation Plants

New generation plants will come online in the period;

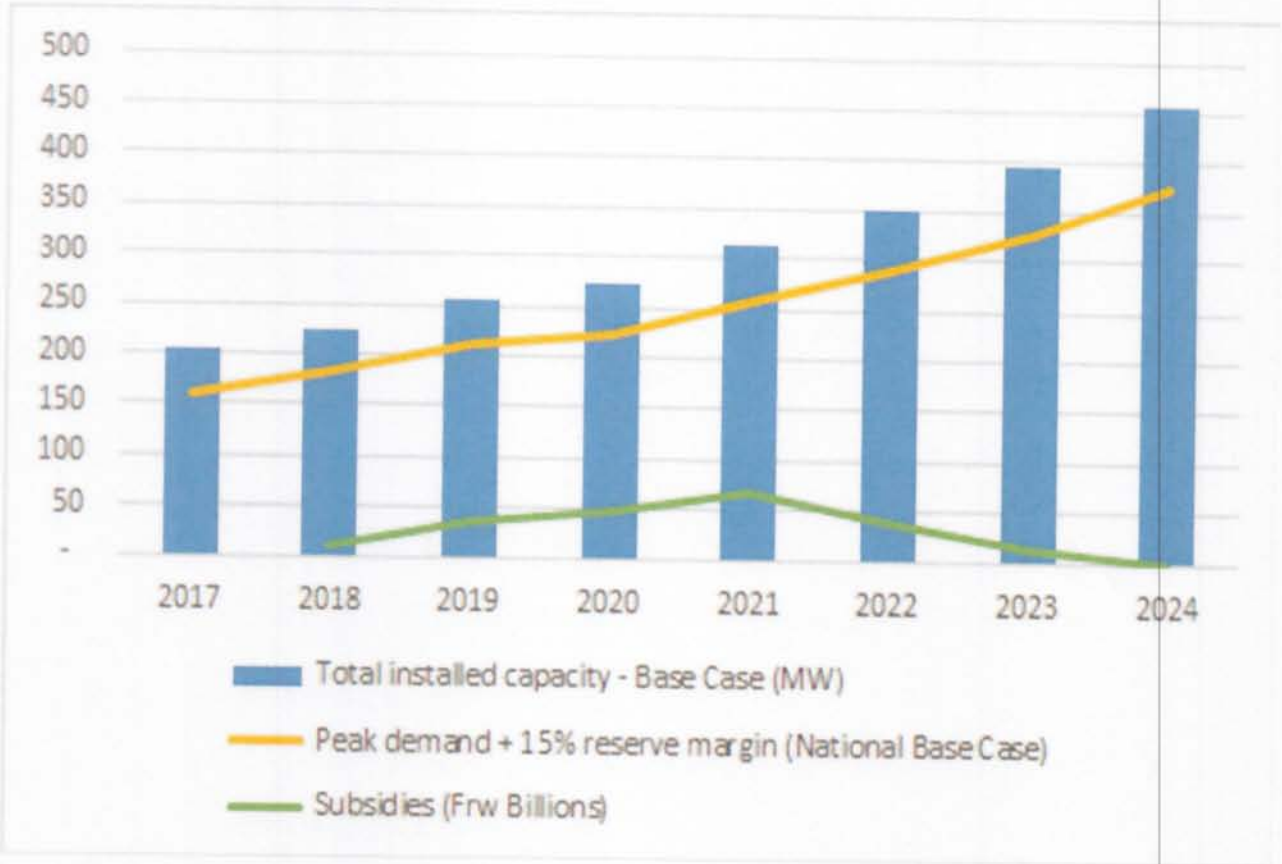
- Hakan- (peat fired) will come on line 2020 with 80MW
- Symbion- (Methane fired) comes online in 2022 with 56MW
- Rusumo Regional Hydro Power Plant - 26.7MW in 2021
- Nyabarongo II Hydro Power Plant - 43.5 MW in 2024
- Rusizi III Hydro Power Plant - 48.33 MW in 2024
- Beyond 2020 – HFO/Diesel will become reserved as standby,
- Gishoma available 4months in the year- optimized in dry months up to 10MW
- Ntaruka will be out for maintenance for 1 year after 2020
- For early 2020, HFO/Diesel Generation share will be increased to the highest of 32% before Hakan comes on stream
- Seasonal effect on generation (July-sept) (January Feb) on Hydro will call for more expensive HFO/Diesel intervention until Hakan comes online
- From 2020 Methane based generation will contribute a significant proportion of energy mix. Therefore, it will be critical that such source of fuel and associated logistics remain steady to maintain supply stability

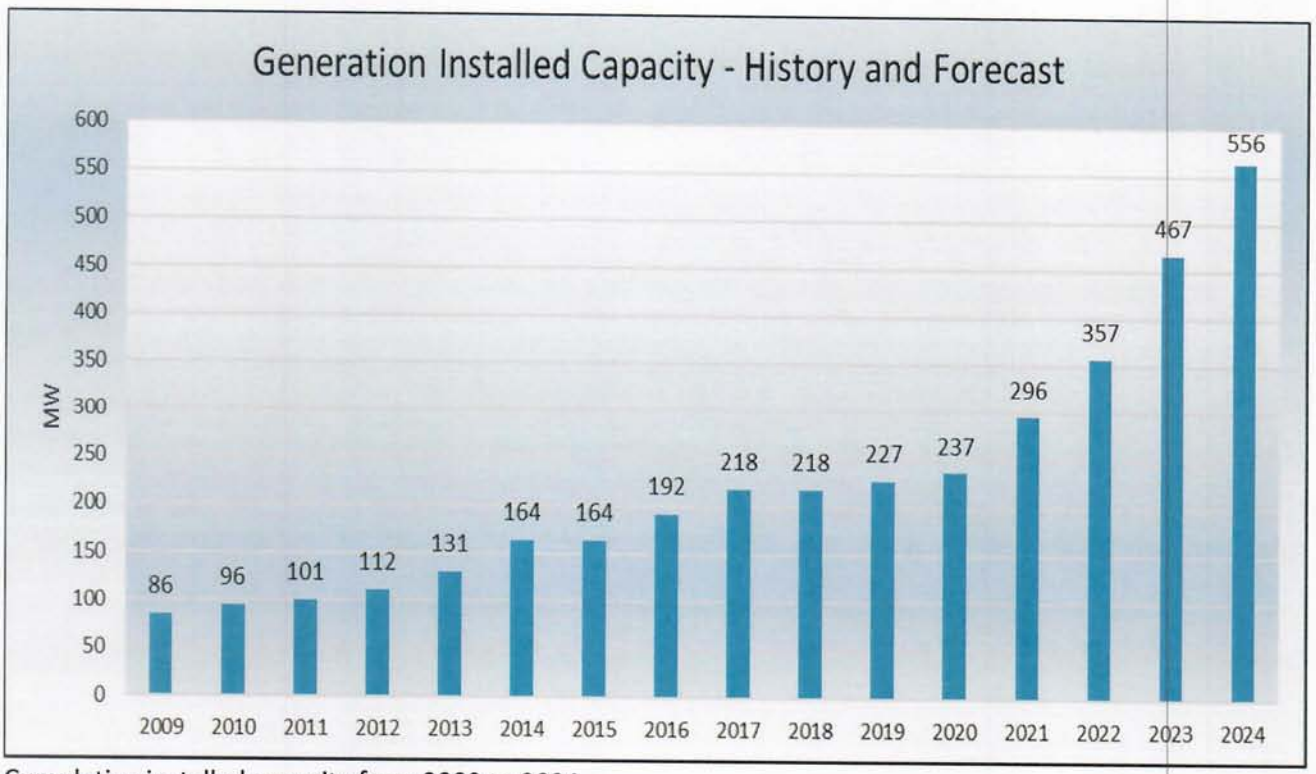
Generation Outlook – Key Inputs and Targets

Periods		2017	2018	2019	2020	2021	2022	2023	2024
Peak demand + 15% reserve margin (historical Growth of 10%)	MW	145	159	175	193	212	233	257	282
Peak demand + 15% reserve margin (National Base case 15% growth)	MW	160	184	212	224	258	288	327	376
Demand difference (Strategic - Base case) Without 15% reserve margin		**13**	**21**	**31**	**27**	**40**	**48**	**61**	**81**
		8.7%	10.9%	6.9%	7.5%	9.4%	7.2%	5.1%	7.0%
		15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Electricity demand growth - Base	KWh	748,138,456	829,685,548	886,933,850	953,453,889	1,043,078,555	1,118,180,211	1,175,207,402	1,257,471,920
Electricity demand at sustained 15% growth annually		748,138,456	860,359,224	989,413,108	1,137,825,074	1,308,498,835	1,504,773,661	1,730,489,710	1,990,063,166
Average generation tariff - Base case	USD/KWh	0.094	0.135	0.128	0.125	0.12	0.115	0.113	0.115
Average generation tariff - Strategic	USD/KWh	0.101	0.135	0.128	0.125	0.12	0.115	0.113	0.115
Total generation cost - Base case (Utility)	USD	70,279,430	111,731,802	113,533,554	119,181,736	125,169,427	128,590,724	132,798,436	144,609,271
Total generation cost - Strategic	USD	75,561,984	115,862,554	126,651,595	142,228,134	157,019,860	173,048,971	195,545,337	228,857,264
Costs for strategic capacity reserve	**USD**	**5,282,555**	**4,130,752**	**13,118,041**	**23,046,398**	**31,850,434**	**44,458,247**	**62,746,901**	**84,247,993**
Total installed capacity - Base case	MW	203	223	245	247	272	289	313	344
Total installed capacity - Strategic	MW	195	224	257	273	314	351	398	458

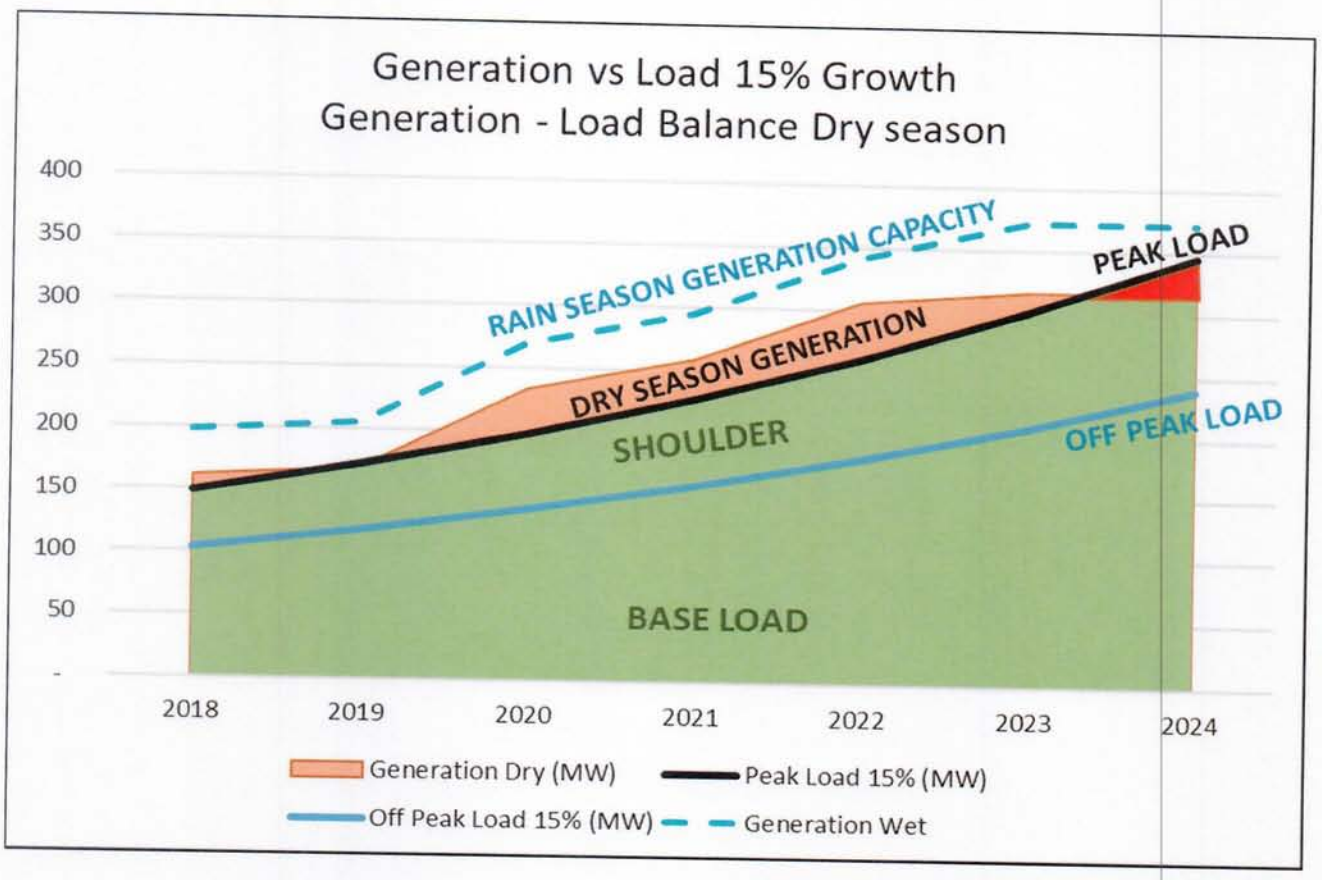
Note: 2017 and 2018 represent historical data

Base Case Peak Demand and Capacity Outlook





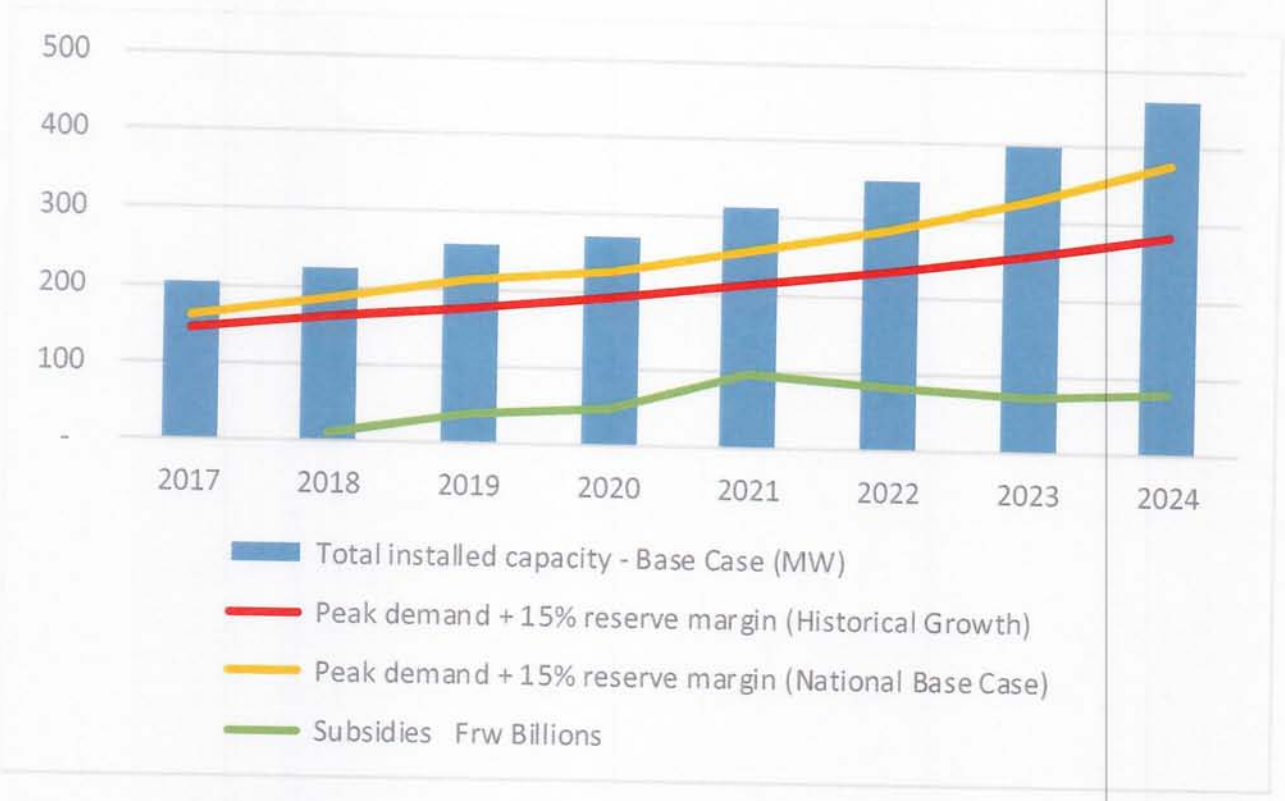
Cumulative installed capacity from 2009 to 2024



Base Case Analyzed

- At an annual demand growth rate of 15%, Installed Generation capacity will grow to 556MW in 2024.
- Based on current planned generation sources, the average generation tariff will be highest in 2020 at US cents 12.5/kWh but stabilizes at US cents 11.5/kWh by 2022 on wards.
- For the period up to 2020 the cost of generation will be higher due to a limited cheaper source of generation thus the need for more HFO/Diesel generation thus increase in additional funding.
- In 2021 onwards, the additional funding increases significantly due increased generation capacity without matching demand in spite of 15% growth.

GDP Growth Rate Case I and Base Case Growth Analyzed



- If the 15% demand growth rate is not achieved, and the Historical growth rates are sustained, excess capacity will result into higher additional funding requirements
- This scenario is envisaged in the period immediately following the commissioning of Hakan in 2020 where all capacity is likely not to be fully optimized.
- Subsidies are needed to support payments for installed capacity that may not be dispatched optimally

In light of the foregoing analysis, REG will pursue a strategy of working with other key stakeholders and especially Government and IPPs to develop generation supply capacity to achieve the targeted growth of 15% with subsidy support as outlined in the medium term to 2024. The Key strategic initiatives are outlined here below;

Strategic Initiatives

a) Establish REG's sector position as institution responsible for Energy Technical Planning in line with government Policy

b) Develop and annually update Demand Forecasts for the sector to form the basis for all new generation projects

c) Develop a comprehensive generation plan based on least cost principles with appropriate spinning capacity and obtain approval from MININFRA

d) Position REG as a key player, effectively participating in PPA formulation and negotiations

e) Mobilize grants and concessional funds to invest in generation projects of at least 40MW and refinance selected existing plants to dilute the high cost of the energy mix

f) Undertake studies aimed at increasing the share of Renewable energy in the mix e.g. Solar, Pump Storage

g) Finalize arrangements for energy imports to supplement internal generation thus covering shortfalls arising from project scheduling and seasonality factors

7.2 - Transmission Development

Strategic Objective (SO2) - **Plan and Build infrastructure to ensure timely alignment of current and future Generation with National Demand**

Rationale

To enable efficient evacuation of energy from generation plants from south-west and other regions to growing load centers countrywide.

Other compelling considerations include;

- New transmission lines and substations have experienced severe delays,
- Interconnections are behind planned schedules
- investments in transmission are costly and need grant and concessional funding
- Transmission designs and implementation lacking best practice i.e. N-1 principles

Strategic Initiatives

a) Complete the construction of the Northern Interconnection and streamline the network to allow imports needed up to 2020 when planned generation projects come online.

b) Complete Southern & Western Interconnections by 2020 to facilitate Exports for the period when Supply exceeds demand.

c) Establish a focal responsibility for Coordinating regional interconnection and power trade activities in REG.

d) Develop and annually update Demand Forecasts for the sector to form the basis for all new generation projects.

e) Establish a focal function for System Operator to ensure effective coordination of generation including IPPs and regional players.

f) Implement economic power dispatch procedures.

g) Develop and implement standard network construction and maintenance procedures to ensure consistency in quality and reliability of Supply.

h) Plan and build transmission lines and substations from key generation plants to ensure evacuation flexibility and reliability of supply to load centers in line with N-1 principles.

i) Ensure good coordination of grid system protection and operation and maintenance to prevent blackouts and power interruptions.

j) Improve Project Management to ensure projects are completed on schedule, on budget and with right quality.

7.3 - Distribution Development

Strategic Objective (SO3) - **Develop and Operate an Optimized Distribution Network to Enhance Utility Efficiency and Reliability of Power Supply.**

Rationale

A detailed assessment of the distribution network has been conducted this has also been supported by the various studies and reviews;

- Network Review and Technical assessment 2013 *(Manitoba Report)*
- Network Planning and Design 2013 (SOFRECO Report)
- Scoping for Kigali 15KV Network Strengthening 2015 (*World Bank Distribution Reports*)

The existing distribution network and adjoining facilities have grown incrementally in response to the growing need for new connections creating operational and reliability challenges characterized by;

- Very long MV and LV lines leading to high losses, poor reliability, and low voltages
- Transformer and feeder over loads thus high losses and outage levels
- Mixed voltage levels
- High technical and commercial losses
- Aging network facilities and need for significant investments
- Inappropriate switching points which severely affects utility business operation in case of planned and unplanned outages,

Strategic Initiatives

a) Develop systematic distribution network plans based on established industry standards in line with load growth forecasts

b) Develop and implement standard network construction and maintenance procedures in line with Grid/Quality of service code to ensure consistency in quality and reliability of Supply

c) Develop and implement a loss reduction strategy to reduce energy losses to 20% (2020) and 15% (2024)

d) Introduce automation technologies to the distribution system to reduce power cuts and restoration time.

e) Connect all Industrial Parks on priority basis by 2024

f) Improve Project Management to ensure projects are completed on schedule, on budget and with right quality

7.4 - Electricity Access

Strategic Objective (SO4) - **Achieve 100% National Access to Electricity within 5 years using on Grid and Off-grid Solutions**

Rationale

The National access target under EDPRS II was to achieve 70% by 2018 but by January 2018, stands at 42% thus in a shortfall. This has been revised based on the targets and priorities in the National Strategy for Transformation, a new target, 556 MW-2024 has been derived based on 15% Demand growth.

Other considerations;

- the challenge that grid intervention not economically feasible for some areas and thus a need for a blend of grid and off-grid solutions;
- The need fast-track access for urban and productive user areas;
- implement electrification policy (no connection fees);

Strategic Initiatives

a) Conduct short to medium term (7 – 10 years.) zonal demand forecasting as part of integrated system planning based on bottom-up principles considering consumer surveys and end-user modeling

b) Achieve 100% access for Kigali City by June 2021

c) Ensure 100% Electricity access for productive users e.g. Industrial zones, Udukiriro, factories, Schools, Hospitals are connected to electricity by June 2021

d) Use a blend of Grid, Mini-grid and off-grid solutions to provide access to 70% of all households by end June 2021 and 100% by 2024.

e) Households located in areas identified/ marked as high-risk zones will not be provided with electricity connections in line with Government policy for organized and safe settlements.

f) Optimize Investment to fast-track Access connections by;

   i) Implementing a connection policy where organized community settlements far from the grid are served through mini-grids and individual households with solar home systems.

   ii) REG will increase the annual share of off-grid connections from the current 4% to 8 - 12% to meet the 5-year plan.

   iii) Assess the appropriate connection solution (grid/mini grid/off grid) for a given area/ cell based on two criteria; *Average Consumption* and *Distance from the Grid*

g) Optimize Investment to fast-track Access Connections by;

   i) Develop Mini grids on EPC basis and negotiate PPAs from IPPs as a separate contract to ensure technical reliability and achieve affordable Tariffs

   ii) Develop Grid and Private Operator Provides Source of power where appropriate and cost effective

7.5 - Tariff Evolution

Strategic Objective (SO5) - **Develop a Tariff Trajectory with clear milestones based on effective engagement with IPPs, financiers and other stakeholders to achieve affordable tariff**

Rationale

This objective considered the fact that high tariffs make it difficult to attract industry and commercial usage on large scale and the need to provide affordability options for household users. Key considerations include;

- The need to make the industry tariff competitive in region
- To enhance operational efficiency and thus cost reduction
- Dilute the high cost energy mix and reduce subsidy dependency
- High energy losses and thus need for effective loss reduction strategies

Strategic Initiatives

a) Establish benchmark generation tariffs where any new generation projects that exceed the benchmark have direct funding to GoR subsidy

b) Conduct Utility Revenue Requirements (RR) studies and Tariff benchmarking analyses to inform medium and long-term planning at least once every 3 years

c) Introduce Solar generation and pump storage to mitigate supply shortfalls before 2020

d) Develop a model to clearly present segmented cost-drivers for Generation, Transmission, Distribution tariffs to enable effective cost control by 2019

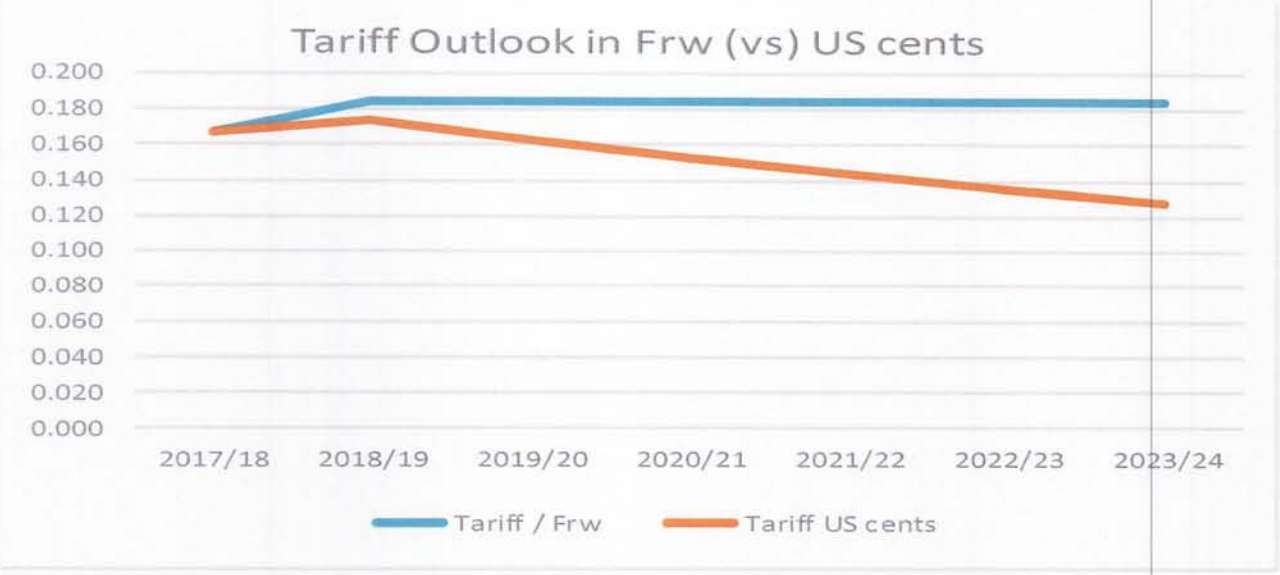
e) Tariff increase will be restricted over the planning period

f) Cost reflective tariff will not be affordable before 2023 hence the need for Government support.

g) The average tariff is assumed to change from Rwf 145/kWh to Rwf 160/kWh by 2019/20 and remain unchanged till 2024. However, in real terms it will be reducing due to forex changes and inflation effects

h) All PPAs and other material inputs to remain in US$ yet the end user tariff is fixed in Rwf; this will increase pressure on working capital – *as graphically illustrated below*

Periods	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Tariff / Frw	0.167	0.184	0.184	0.184	0.184	0.184	0.184
Tariff US cents	0.167	0.173	0.163	0.153	0.144	0.135	0.127



Key Considerations

- In the period before 2023, there will be a sustained need for Subsidy support to avoid Tariff escalation
- Innovative PPA arrangements will be a critical in reducing the Tariff Level in the long-run
- New generation investments to be approved considering optimizing supply availability and cost

7.6 - Operations and Maintenance

Strategic Objective (SO6) - **Ensure optimized plant and network operations for excellent service reliability, with most economical plan.**

Rationale;

- Objective drawn against a scenario of high outages and frequent black-outs
- Significant dependency on diesel fuel for operations
- Fluctuating water levels and thus straining operational efficiency of hydro plants
- Poor quality of supply and limited customer orientation
- The need to streamline network planning and investment to improve reliability

Strategic Initiatives

a) Develop and implement a preventive and predictive plan for Plant and Network maintenance to ensure service reliability

b) Develop Standard Operating Procedures(SOPs) to ensure consistency in service provisioning and quality

c) Develop Occupational health and safety Procedures to ensure safety for Staff, Equipment and Public in line with OHSAS 18001

d) Enforce the Standards as laid out in the Grid Code and Tariff code for IPPs and Large Customers

e) Institute coordinated Planning for Plant and Network maintenance that includes IPPs to optimize plant capacity and ensure service reliability

f) Develop and implement an effective loss reduction strategy to reduce losses from 20% to 15% by 2024

g) Acquire Equipment and Skills to Introduce live maintenance practices to minimize service disruption

The Utility is undertaking measures to improve efficiency in operations and the following table provides examples of the key levers for change that will be detailed in the EUCL's Business Plan which will operationalize the commitments in this strategic plan.

A Case for Change in Operations

No service level commitments	*Accountability*	Implement fully the Customer Service Charter
High losses > 22%	*System losses*	Low losses ≤ 15% by 2024
Low reliability of power supply (SAIDI/SAIFI Measures)	*Company brand and image*	High Service reliability *" Lights always On"*
Poor service delivery	*Customer satisfaction*	A new Customer orientation and Customer metrics to make customers happy
Lack of professionalism and performance Orientation	*Organization culture*	Enhance the PIP Model on Commercial KPIs from Top to Operational level
4 days for households and 34 days for large customers.	*New Connection Processes*	1day for households and 20 days for large customers.

7.7 - Corporate Governance

Strategic Objective (SO7) – **Structure and Equip REG to Competently Implement Strategy;**

Rationale

- The functional strategies identified in this plan can only be realized by putting in place structures, systems policies and procedures that support efficient implementation.
- The need to attract, develop and retain staff with the requisite skills for effective implementation.

Strategic Initiatives

a) Engage with sector stakeholders to have EDCL as a self-contained Budget entity by June 2021 functioning with Corporate autonomy *(per Company Law and Corporate Governance Best Practice)*

b) Improve the financial performance of EUCL and prepare the Company for Stock Market Listing by 2022 *with interim milestones of Clean Audit (in 2Yrs) and Profitability of ≥5% (by Year 3)*

c) REG must live out its Customer oriented value by creating and delivering products and services that are aligned to the needs of Customers/Users

d) There is need to make commercial decisions based on robust data analysis and interpretation for new product and service development

e) Transform EDCL into a viable Corporate entity by June 2022 with distinct operations and revenue streams *e.g. Engineering Consultancy, Project Development and Management Services to the ESI and related Projects*

f) Establish structures and specialized teams with skills in PPA design/administration, Project Management, Tariff design and modeling by December 2020

g) Establish an effective Performance Management System by December 2020 that ensures that staff work is continuously monitored and directed to achieve the desired goals

h) Achieve Corporate integration through the Installation of Business management systems driven by modern technologies *e.g. IBMS, Revenue Protection, Smart Meters, GIS etc. by June 2020*

i) Complete the Transfer to Government all onerous liabilities from the REG in line with the provisions of the PMO on EWSA reform

j) Enhance HR capacity (deploy staff and train) in key areas of the Group including a Project Management function to ensure effective project development and implementation to eliminate time and cost overruns

k) Revise and implement an enabling policy on whistle blowing with clear incentives for reporters

7.8 - Communication Strategy

Strategic Objective (SO8) - **Build an awareness of REG's Products and Services to enlist commitment of Stakeholders to the Vision and Mission**

Rationale

- The REG Strategy and initiatives must be understood and supported by our key stakeholders.
- The Strategy cannot be implemented successfully by REG in isolation and thus Communication enables continuous engagement with internal and external stakeholders e.g. *End-users, Government, Development Partners, IPPs, Banks, REG Staff, Service Providers and Public*

Strategic Initiatives

a) Develop a comprehensive education and awareness programme for internal & external stakeholders across relevant media platforms;
   - to increase by 5% annually positive perception & commitment;
   - (a baseline will be determined by the survey which will be carried out in the 1st year)

b) Strengthen media relations to ensure positive perception and institute a daily media monitoring system to address any negative publicity.

c) At least positively appearing in the media once a week.

d) Conduct quarterly press briefings to reinforce awareness on progress of projects and service improvements

e) Conduct Semi Annual Large Customer Forums to reinforce awareness on progress of projects and service improvements

f) Develop and implement a Corporate Social Responsibility (CSR) Policy and Action Plan to support Brand Visibility

g) Streamline Branding at REG and its subsidiary companies to ensure effective visibility

h) Develop periodic briefs, fliers, brochures and other communication materials to disseminate information on key Service developments

i) Organize workshops and exhibitions in collaboration with partners to engage institutional stakeholders for ongoing collaboration and support to REG programmes

j) Transform the REG website and social media platforms to enrich their depth and performance as a dynamic information repository and news for stakeholders

k) Empower Branches and Hubs with resources and materials to strategically engage with the local community on key service developments

l) Put in place an external link directorate to act as one stop center for all internal and external communications and coordinating for all delegations and external guests coming to REG

m) Develop and maintain a database for all REG institutional and individual stakeholders

7.9 - Capacity Development

Strategic Objective (SO9) – **Enhance Staff's professional and technical capacity to support REG consistently deliver on its Mission**

Rationale

- REG has set capacity building priorities considering the 556MW generation targets, 100% Access, Service quality and reliability objectives
- Capacity Building will include targeted short-term trainings & professional courses, technical & non-technical
- Over a 3 period, an Est. Rwf 2.9 billion is required for Capacity Development
- Current structure has **1,361** staff and is filled at about **92%** and Female staff comprise about 25% of the workforce.
- Performance gaps have been identified that will be bridged through capacity development plan.

Key Priority Areas for Capacity Development

- Energy Planning
- Construction & supervision of power infrastructure
- Testing & Commissioning of power infrastructure
- Operation & Maintenance of power Infrastructure
- Loss Reduction
- Standards
- Network Protection
- Power System Efficiency
- Off-grid technologies
- Certification of IPP team
- Revenue Assurance and Protection
- Project Management
- Customer Relationship Management
- Financial Management
- Health & Safety
- Human Resources Management
- Procurement
- PPAs, Bi-lateral energy agreements & concession agreements
- IT infrastructure & Business Applications
- Audit & compliance Energy Planning

Strategic Initiatives

a) A detailed action plan has been developed with clear priorities for the first 3 years of this strategic plan

b) Short-term training programmes

c) In-country group and team focused training

d) Corporate attachments to Benchmark Utility entities

e) Apprenticeship schemes especially for technical skills in O&M

f) On Job Specific Training from specialized service providers like engineering firms, IT Service implementers, etc

g) Counterpart practical attachments to service providers especially in Project Management /Supervision

h) Online, Webinars, and syndicated web-based trainings

7.10 – Commercial Strategy

Strategic Objective (SO10) – **Serve our customers and ensure their satisfaction through our culture of excellence**

Rationale

- Improve profitability
- Increase revenues
- To provide quality services.
- To increase customer and stake holder satisfaction level.
- Increase customer base connections.
- Increase application of modern technology.
- Improve strategic skills.
- Improve meter management skills.
- Improve staff work ethics.
- To reduce processes and cost of doing business.
- Improved billing efficiency.
- Increasing other sources revenues.

Strategic Initiatives

a) Enhance customer relationship management by introduction of Modern customer care applications that interact with customers.
b) Remodeling of customer service center;
c) Partnerships with financial and telecommunication institutions to ease payments for the services offered by the company.
d) Accelerate new connections towards national electricity access.
e) Completion of electrification projects
f) Encouraging investment of off grid mini grids solutions.
g) Implement the new connection policy
h) Implementation of an automated billing system
i) Secure and ensure meter readings efficiency
j) Respecting routing schedules and electronic invoice delivery
k) Enhancing Efficiency in customer categorization
l) Install smart meters
m) Increased focus towards 100% revenue collection
n) Implementing a Debt Collection Management Module and recovery plan for effective collection.
o) Introduction of self-service vending points
p) Shifting defaulting post-paid customers to Pre-paid where necessary.
q) Updating customer's account and reconciliations.
r) Implementation of effective disconnection management module

s) Updating customer's account and reconciliations.
t) Proper registrations, recoding of customer information and GIS coordinates and Carrying out customer census.
u) Enhancing effective Customer categorization.
v) Review and update of customer Contracts (service agreement).
w) Improved management and sell of dark fiber
x) Replacement of incandescent and other lamps with LED lamps.
y) Fast track the carbon credits plan for all new renewable energy generation projects in pipeline.
z) Import and sell off grid standalone systems

8 - Financing Strategy

The overall goal of the REG financing strategy is in obtaining low cost and long-term funds for investment. This will enable recovery of capital and returns over a long-horizon thus mitigating cost on the Group's cashflows, and the low financing burden will support the overall objective for diluting the cost of service given the high cost energy mix. REG seeks to contribute to a competitive energy sector that meets that meets Government objectives and builds a sustainable economy.

8.1 - The main assumptions are:

a) End-user Tariff is assumed to remain unchanged since it is still higher than other regional utilities

b) Annual demand growth at 15% supported by targeted Government Initiatives

c) Increased Generation Cost (IPP) due to new generation plants from Rwf 115bn in 2019 to Rwf 201bn by 2022

d) In the second scenario, demand is assumed to grow at an average of 7.5% annually, modeled based on historical trends and typical economic forecasts

e) Steady growth in industrialization driven by the national strategy to expand economic activity to utilize new generation capacity

f) Average Loss reduction at 1% annually with more reductions to be obtained in the first 3 years slowing down later to 2024

g) REG to start Off Grid partnerships model in YR -2 seed capital of Rwf 2bn for 2 years

h) Cash collections at 98% of sales growing to 100% by 2024

i) Interest rates remain stable in range 14% - 16%

j) Continued strong partnership with Development Partners and Multilateral agencies for concessional capital of US$ 62m by 2024

k) Other Long-term Capital; private US$ 195m and GoR US$ 149m

l) The revenues from operations will cover utility costs and any deficit from IPP costs obtained from GoR Subsidy

m) Some savings on Project funds BADEA, AFDB, WB, SAUDI will be deployed to access 18/19; 19/20

n) REG will seek to contract Long term loans to invest in projects thus relieving pressure on operational cash flows

o) Annual cost increase including inflation at 8%

Investment Out Look:

Period	Yrs 1-3	Yrs4-5	Yrs 6-7	Total
	Rwf 'Bill	Rwf 'Billi	Rwf 'Billi	Rwf 'Billi
Generation	34	12	102	148
Transmission	18	24	17	59
Distribution	12	11	11	35
Access	43	19	39	100
Operation & Maintenance	201	317	335	853
Financing	8	12	13	33
Total	**316**	**395**	**516**	**1,227**
Financed by:				
Operations	188	298	316	803
Concessional loans	43	19	-	62
Other L/T Finance	46	21	128	195
Grants	7	9	3	19
GoR	32	48	69	149
Total	**316**	**395**	**516**	**1,227**

8.2 - Financial Strategy – Operations and Sustainability

Base Case 15% Demand Growth – Financial Analysis

a) The financial performance has two distinct phases, the period Before and After 2020 in line with significant changes in generation mix

b) Annual Revenues will grow on average at 15% from Rwf 149.5bn in 2019 to Rwf 266.9bn by 2024

c) On the other hand, the cost of generation will increase by 31% and 33% for 2019 and 2020 from Rwf 115bn to Rwf 201bn initially driven by increasing thermal generation and later coming on Stream of Hakan by 2020

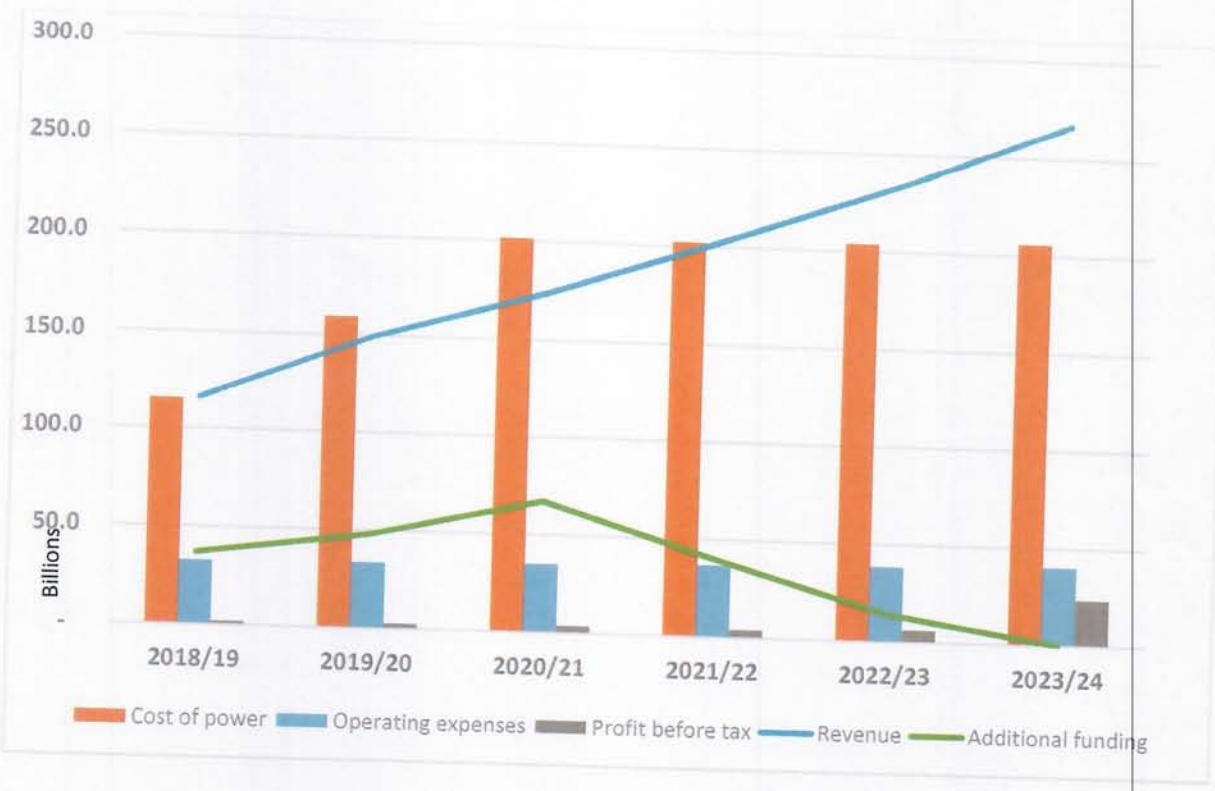
d) This outlook is based on a relatively constant average tariff of Rwf 160/kWh terms but effectively reducing annually due to annual inflation and forex depreciation. Increased energy cost (IPP) due to steady growth in industrialization will be subsidized by government

e) This outlook is based on a relatively constant average tariff of Rwf 160/kWh terms but effectively reducing annually due to annual inflation and forex depreciation. Increased energy cost (IPP) due to steady growth in industrialization will be subsidized by government

f) REG to start Off Grid Sales model in YR -2 seed capital of Rwf 2bn for 2 years

g) Cash collections at 98% of sales

h) Interest rates remain stable starting at 14% and not exceeding 16%



From the above chart and the table that follows: Cost of power will increase from slightly Frw 159.3 billion in 2019/2020 to Frw 201.3 billion in 2020/2021 and stay at this amount in the remaining period. The revenue will increase steadily from slightly Frw 149.5 billion in 2019/2020 to Frw 267 billion in 2023/2024. Costs of power will exceed revenue to 2021/2022. The operating expenses are expected to increase slightly from Frw 33.7 billion 2019/2020 to Frw 40.3 billion 2023/2024. The additional funding will increase to Frw 67 billion in 2020/2021 then decrease to zero in 2023/2024.

Periods	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Revenue	91.9	116.2	149.5	174.1	202.6	233.0	266.9
Cost of power	83.7	115.2	159.3	201.3	201.8	203.8	205.9
Gross profit	8.1	1.0	(9.8)	(27.2)	0.8	29.1	61.1
Subsidies and other revenues							
Additional funding	10.9	37.0	48.0	67.0	40.0	14.0	-
Other income	5.7	6.2	6.2	6.4	6.5	6.7	6.9
	16.6	43.2	54.2	73.4	46.5	20.7	6.9
Operating expenses							
Distribution costs	14.8	15.3	16.9	17.9	19.0	20.1	21.4
Administrative expenses	15.5	17.6	16.8	17.3	17.8	18.4	18.9
Operating expenses	30.3	32.8	33.7	35.2	36.8	38.5	40.3
Operating profit/(loss)	(5.5)	11.4	10.7	10.9	10.5	11.4	27.7
Financing costs	3.2	5.2	4.1	3.5	2.9	2.2	1.5
Realisation of grants	5.7	6.2	6.6	7.1	7.5	8.0	8.4
Depreciation and amortisation	10.5	10.5	10.6	10.6	11.1	11.1	11.1
Profit before tax	(13.5)	1.9	2.7	3.9	4.0	6.0	23.6
Tax	3.8	(0.5)	(0.7)	(1.1)	(1.1)	(1.7)	(6.6)
Profit after tax	(9.7)	1.3	1.9	2.8	2.9	4.3	17.0

8.3 - Financing Strategy – Costs and Funding

a) Revenues projected to grow driven by accelerated demand because targeted National incentives and policy to stimulate economic activity

b) The Cost of power- will grow rapidly in first 3 years by use of more thermal before 2020 to meet growing demand and later cost increases by coming on line of 80 MW Hakan peat to power

c) Cost of Power will peak at 2021 and stabilize for the reminder of the period as growth in demand is met by spare generation capacity

d) Demand growth post 2021, will be served through increased plant optimization with negative marginal cost and thus subsidy reduction from the highest of 2021 to elimination by 2024

e) REG will seek to optimize its new investments in systems and other equipment and thus Operating expenses will range from Rwf 30.3bn in 2017/18 to Rwf 40.3bn by 2024
f) In addition to the projected additional funding support, the Company will attain financial profitability by 2024 assuming accelerated demand growth conditions
g) The Company will also devote some resources in debt Servicing Rwf 4.1bn in 2019/20 and later drop to Rwf 2.9bn as some of the Loans get paid progressively

8.4 - Financing Strategy – GDP Growth Rates

If the demand growth conditions are not attained, and growth reflects the historical trends, the required additional funding will be higher;

Table- Financial overview from 2018 to 2024

Periods	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Revenue	91.9	116.2	125.3	138.8	150.5	173.1	198.4
Cost of power	83.7	115.2	146.5	201.3	201.8	203.8	205.9
Gross profit	8.1	1.0	(21.2)	(62.6)	(51.3)	(30.7)	(7.5)
Subsidies and other revenues							
Additional funding	10.9	37.0	60.0	102.0	93.0	72.0	54.0
Other income	5.7	6.2	6.2	6.4	6.5	6.7	6.9
	16.6	43.2	66.2	108.4	99.5	78.7	60.9
Operating expenses							
Distribution costs	14.8	15.3	16.9	17.9	19.0	20.1	21.4
Administrative expenses	15.5	17.6	16.8	17.3	17.8	18.4	18.9
Operating expenses	30.3	32.8	33.7	35.2	36.8	38.5	40.3
Operating profit/(loss)	(5.5)	11.4	11.3	10.6	11.5	9.5	13.1
Financing costs	3.2	5.2	4.1	3.5	2.9	2.2	1.5
Realisation of grants	5.7	6.2	6.6	7.1	7.5	8.0	8.4
Depreciation and amortisation	10.5	10.5	10.6	10.6	11.1	11.1	11.1
Profit before tax	(13.5)	1.9	3.3	3.6	4.9	4.2	9.0
Tax	3.8	(0.5)	(0.9)	(1.0)	(1.4)	(1.2)	(2.5)
Profit after tax	(9.7)	1.3	2.4	2.6	3.6	3.0	6.5

Prediction of financial overview from 2018 to 2024

From the above chart and the table: Cost of power will increase from slightly Frw 146.5 billion in 2019/2020 to Frw 201.8 billion in 2020/2021 and stay around this amount in the remaining period. The revenue will increase steadily from slightly Frw 125.3 billion in 2019/2020 to Frw 198.4 billion in 2023/2024. Costs of power will exceed revenue for the whole period. The operating expenses are expected to increase slightly from Frw 33.7 billion 2019/2020 to Frw 40.3 billion 2023/2024. The additional funding will increase to Frw 102 billion in 2020/2021 then decrease to Frw 54 billion in 2023/2024.

a) From this position the while the revenue will grow over the planning period to Rwf 198.4bn, by 2024, the costs of Power grow disproportionately higher

b) The reduction in additional funding is facilitated by two reasons, the growth in demand that affords more optimal plant utilization and progressive Loss Reduction at a cumulative amount of 7% over the period.

c) It is notable that the Operating costs are forecast to remain relatively stable over this period like the case before from Rwf 33.7bn closing out at Rwf 40.3bn

d) Any other mitigating developments like tariff increase, accelerated loss reduction, delay in the Symbion plant would reduce the additional funding requirement pressure.

8.5 - Financial Observations

- In light of the foregoing two cases (Base Case and Historical GDP Rates), the risk of demand growth on cost of generation is high.
- It remains strategically critical that efforts are made to dilute the cost of supply going forward.
- Refinancing using cheaper sources of capital (concessional funds) could also yield better results about overall cost of power
- The overriding objective is seeking to keep the tariff nominally stable but declining in real terms so as attract investment that would in turn stimulate demand and ultimately optimize generation capacity

9 - Conclusion

- In this strategic plan REG commits to improve service delivery- increase supply, Improve network performance and reliability.
- Increase Access to electricity services including mini-grids and other off-grid interventions.
- Financing will be contracted in order of priority from Grants, Concessional loans and Government of Rwanda.
- REG will aim to ensure a well-integrated sector development plan that links generation to consuming load centers efficiently.
- REG will substantially enhance its institutional capacity to achieve the set objectives.