2019 Integrated Report

Sixth Integrated Report

Advancing towards sustainable operations

About this Report

The information in this report has been selected to provide stakeholders with an overview of our strategy, business model, performance and governance practices, as well as our risks and opportunities.

The selection of matters to be covered in this report was determined based on whether the matter could substantially affect our ability to create value. It was informed by inputs from our stakeholders within and outside ZESCO Limited and was further refined through engagement with executive management and the Board of Directors.

Report Approval

The Board acknowledges its responsibility to ensure the integrity of this report and confirm that this integrated annual report addresses all material matters and provides a balanced overview of the Company and its prospects. The Board has therefore approved the 2019 Integrated Report for publication.

Dr. Mbita Chitala Chairman	**Mr. Victor M Mundende** Managing Director	**Mr. Emmanuel M Banda** Finance Director	**Mr. McRobby V. Chiwale** Company Secretary

Integrated Reporting Team

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Company Secretary

Venansio Phiri
Management Accountant Financial Reporting

Saviour Mwila
Budget Analyst

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Accountant - Financial Analyst

Mr Brown Zimba
Snr Manager Accounting Services

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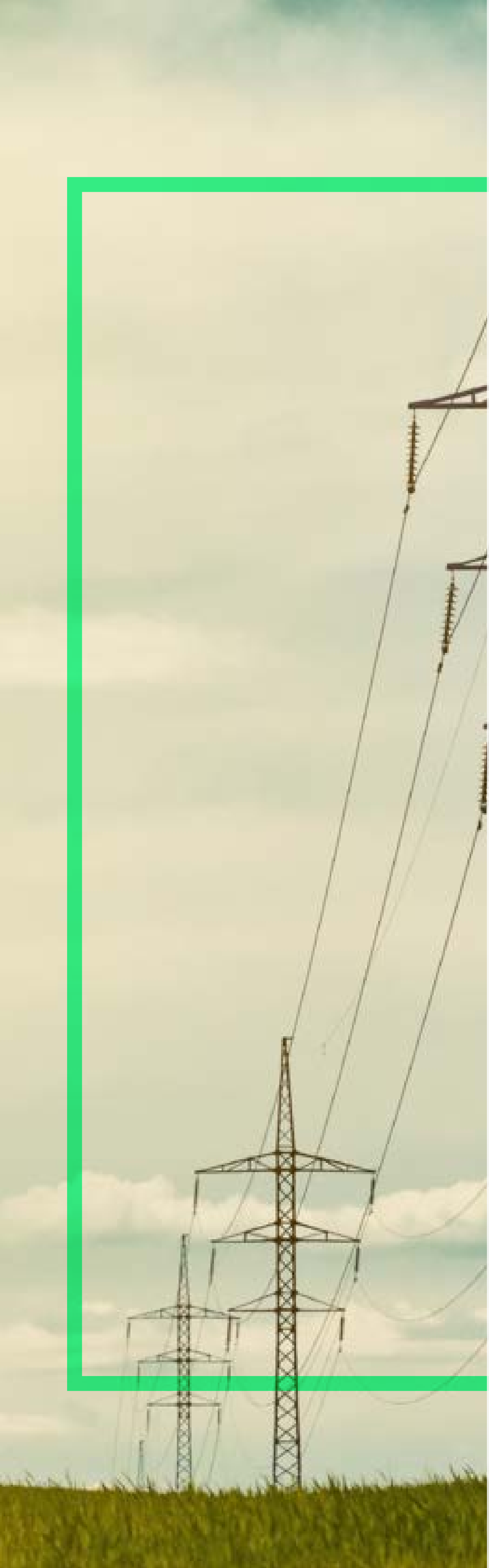
Senior Accountant Transmission

Dalitso Mwanza
Public Relations Officer



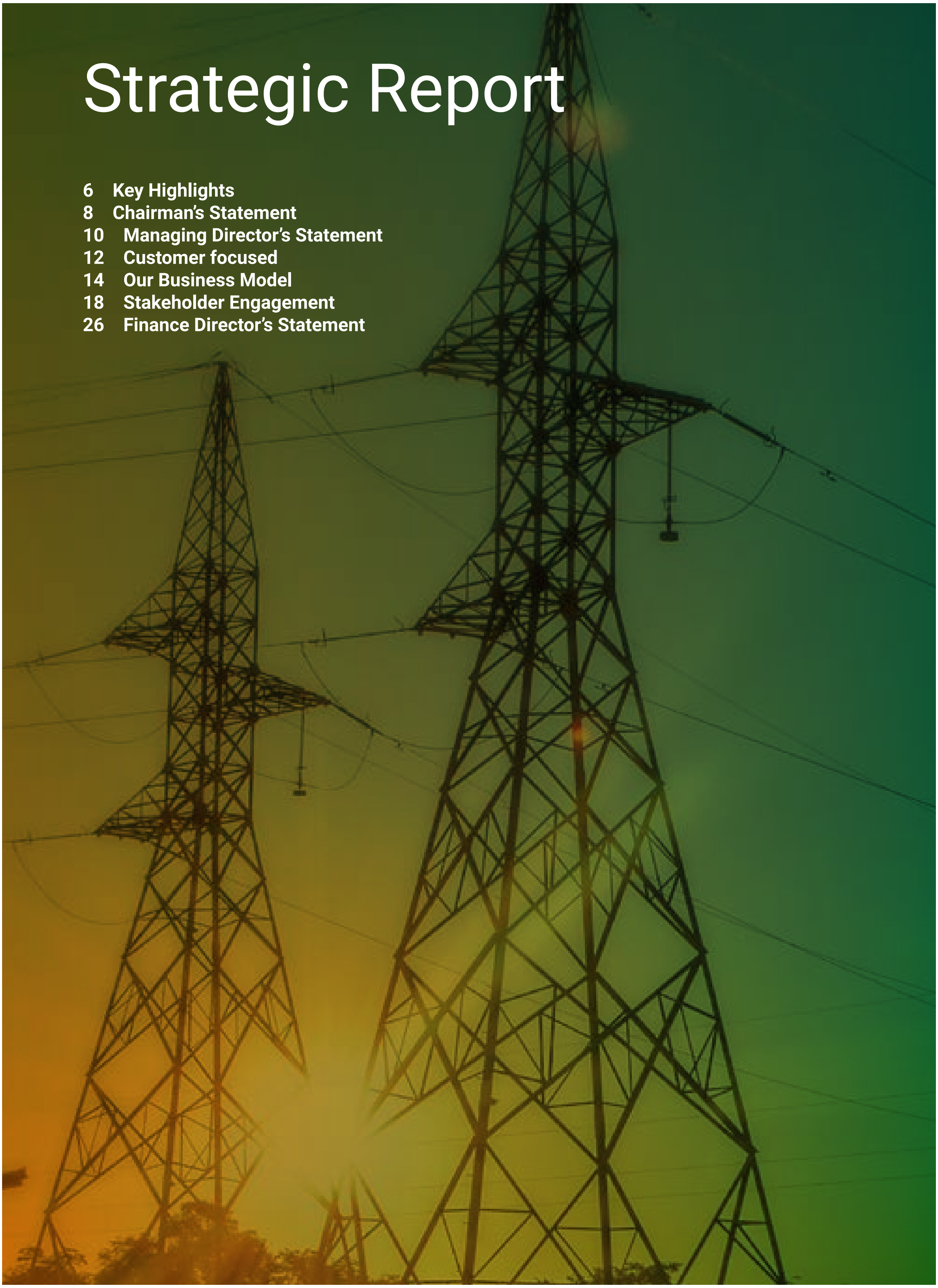
Contents

Design and layout: Dalitso Mwanza demwanza@zesco.co.zm

Paper: Books printed full colour cover on 250gsm matt +matt laminated, text on 135gsm matt paper. Perfect bound.Size: A4

Photo and editor: Dalitso Mwanza

Strategic Report



WHAT WE ASPIRE TO BE

Our Vision

‘To be the hub of electricity trading in the region by 2025’

WHO WE ARE. WHAT WE DO

Our Mission

Making it easy for people to live a better life.

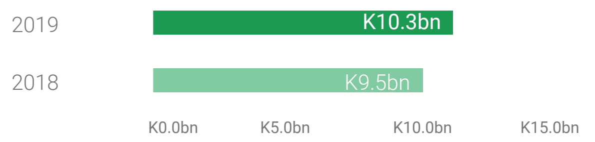
Our Values

Love
We care and support one another, as well as our customers.
Commitment
We are passionate about what we exist to do for one another, and for our customers.
Integrity
We uphold fairness and truthfulness in our actions.
Open to ideas
We are open to ideas with deliberateness and spontaneity

Group Highlights

Financial Metrics

Revenue

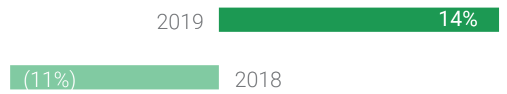


This is total Income recorded in the period. This includes Domestic, Mining and Export customers.

Net Profit Margin

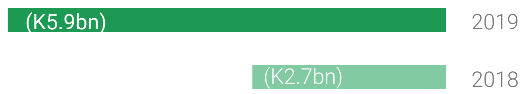
This is the ratio of net profits to revenues

EBITDA Margin



Measure of Netprofit after all operating expenses including non cash expenses

Operating Profit



This is profit from business operations before deducting interest and taxes.

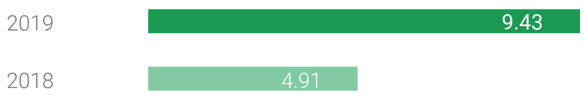
Return on Capital Employed

This is a performance measure used to evaluate the efficiency or profitability of an investment

Net Assets

The value of the companies Assets less Liabiltities

Interest Cover



Measures how many times a company can cover its current interest payment with its available earnings

Current Ratio

is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year

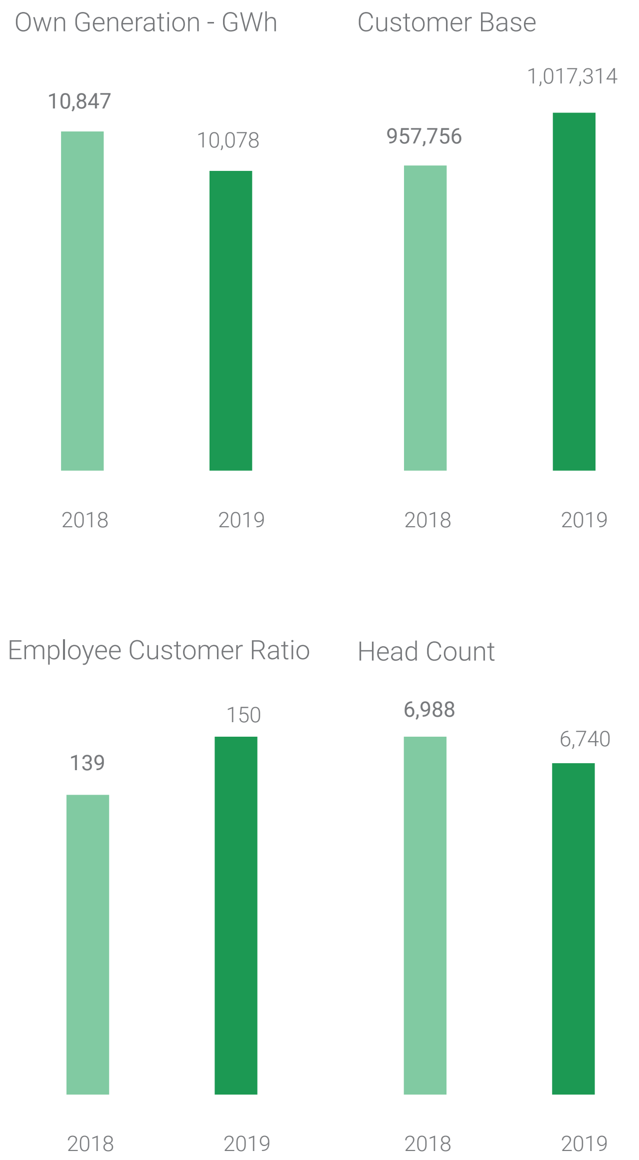
Debt level

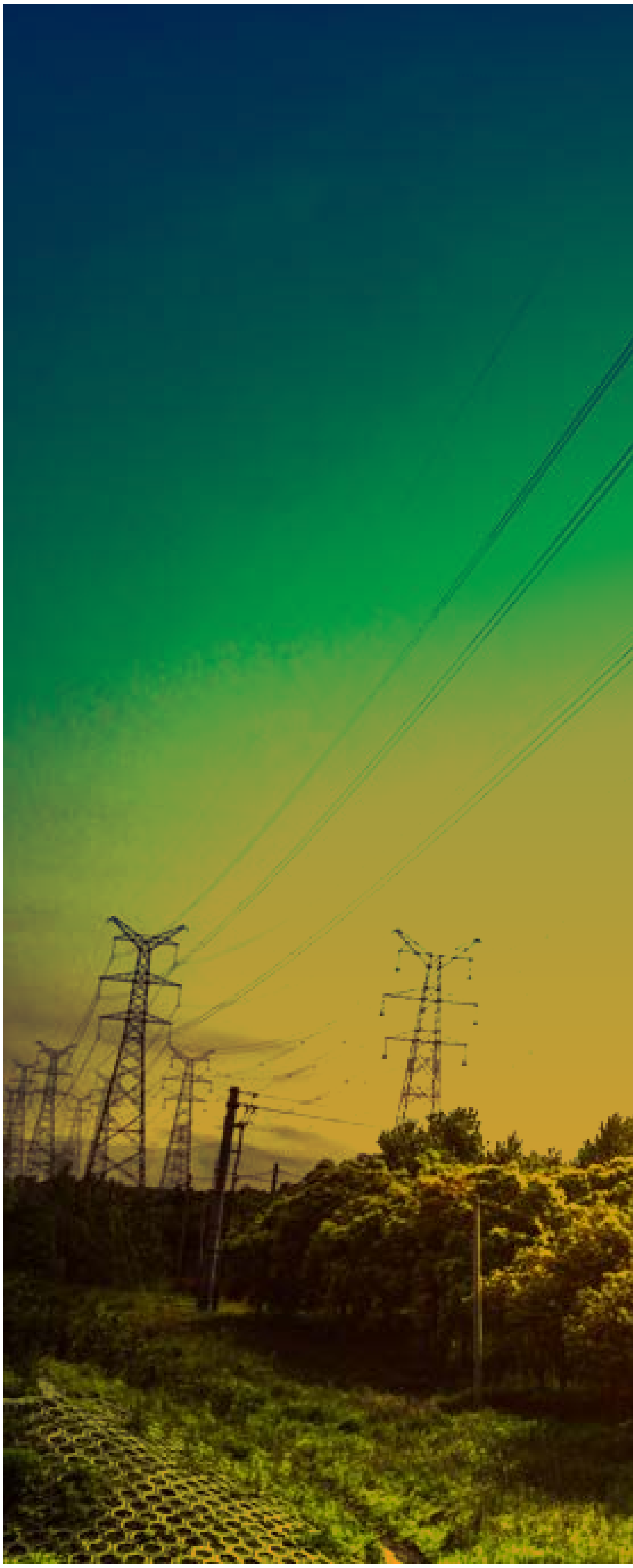
is a measure of how much debt is outstanding

Gearing

Refers to the relationship, or ratio, of a company's debt-to-equity (D/E).

Operational Performance





Chairman's Statement

Dr. Mbita C. Chitala
Board Chairperson

Dear Shareholder,

There is one thing that will always be constant in business, that is the evolving external environment and as ZESCO we must always be prepared to respond. Our goal is to meet the customers' energy needs and build upon our legacy that is customer-centric.

The global events and economic activities have a strong bearing to the local economy which then affects the performance of the corporate players, ZESCO included. As a corporate entity we have procured debt from global lending institutions of which most of the loans are tied to LIBOR indices which change in lockstep with new figures. In 2019, the average US Dollar LIBOR interest rates increased by 16% (1,600 basis points) from 1.835% in 2018 to 2.133% in 2019. This meant that debt servicing became more expensive in 2019 than in the prior year. The global economic growth fell to 2.9% in 2019 from 3.6% posted in 2018, largely due to slowdown in industrial output and weakness in global trade and investment. The slowdown affected the global economic system, for example in advanced economies it contracted to 1.7% from 2.2% recorded in 2018.

The domestic economy was severely affected by both global economic activities and localized external factors such as drought, reduced mining output and lower copper prices. According to African Development Bank Group, the real GDP growth slowed to estimated 2% in 2019, down from 4% in 2018, this is mainly on account of the drought that hit the south and western part of the country. This lowered the 2018/19 agricultural production and hydro power electricity generation considerably. In 2019, inflation rose from 7.5% in 2018 to 9.2%, largely pushed by exchange rate depreciations and food price increases.

I must state at the outset that ZESCO hosted the Association of the Power utilities of Africa (APUA) meeting in Livingstone in May 2019 with our Managing Director Engineer Victor Mulenga Mundende as President of the Association. Such affiliations to regional bodies help strengthen our intellectual, social and relationship capitals.

Independent Power Producers (IPPs)

Zambia's independent power producers (IPPs), produce about 17% of the country's electricity and contribute over 70% of ZESCO's trade payables. In 2019, ZESCO procured an average of 290 MW from IPPs at a weighted tariff of USc11 per kWh and sold the power at an average of USc6.5 per kWh. This tariff disparity has led to the rapid accumulation of payables.

The worry around unsustainable tariffs is very unsettling as the corporation is only paying an average of 45% of the total invoices. The IPP debt continues to accumulate on monthly basis at over 55% of invoice amounts and thereby threatening our social and relationship capital. As a short-term measure to help Maamba collieries pay its lender's obligations in January 2019, ZESCO had to borrow USD 20 million from the local market. As a board we suitably recognize that bridging finance mechanisms have never been the solution to ZESCO's financial condition but just help the corporation in 'kicking the can down the road'. To this end, the board is giving much needed support to management in successfully concluding the IPP tariff renegotiations. There is a clear direction of action given to management on future

IPP contracts, to only enter deals which are sustainable.

Our Role in The Economy

The role of electricity in economic development cannot be overemphasized, the society bestowed a rare opportunity to my Board and Management to be part of this noble economic equation. In my long public career, it has been my firm understanding that what positively impacts human development, improves the communities and society at large. 2019 may have not been the best year amidst the electricity rationing that our citizens were subjected to, however, my Board set the tone at the top to ensure that the executive management explores investment in renewable energy. We generated 8% lower than the projected 13,315 GWh from our hydropower stations. The electricity purchases of 4,651 GWh were 4% lower than in the prior year. The gross energy of 14,729 GWh sent out was deployed to various sectors of the economy albeit not being enough due to long periods of load management. The decrease in electricity generation was mainly due to continued reduction in water levels at Kariba and Itezhi-tezhi, this was compounded by a shutdown of one of the units at Maamba Collieries.

Implementing a Robust Strategy

ZESCO has remained resilient despite sustained periods of non-cost reflective tariffs, depreciating local currency and perennial droughts. It can be argued that most of the financial burden the firm is facing are attributable to the high cost of electricity purchases versus non-cost reflective tariffs. The tariff imbalances have contributed to high levels of payables and the only plausible and most sustainable solution is to first fix the tariffs between purchases and sales before embarking on sourcing for debt financing meant to amortize the payables.

ZESCO Limited through its recently formulated strategy which is aimed at achieving its vision of "Becoming the Hub for Electricity trading in the region by 2025", developed a road map to guide the organisation to its vision. The road map was developed in 2018 for implementation starting in 2019.

The organization focused on the following activities in 2019 as it pushed to achieve its strategic objectives and vision while riding on the theme "Service Delivery" for 2019.

- Uninterrupted supply,
- Profitable operations and;
- Customer connections.

Creating a Green momentum in 2019

My Board is providing leadership to the Executive Management to march towards green investments as one of the ways to hedge against the adverse effects of climate change. The Board is elated that ZESCO has developed renewable energy strategies that spur sustainable development such as resourcing employees with skills in renewable energy. ZESCO also has a dedicated unit that focuses on renewable energy development in the country. We are forming strategic partnerships with reasonable stake and signing Power Purchase Agreements (PPAs) that are lower than our selling tariffs. In 2019 two such PPAs, Ngonye and Bangweulu reached commercial operation.

Our People

ZESCO's greatest asset is its human capital and we place more value in our colleague's working day and night to ensure that there is value created along the components of the value chain. We have a well-trained and skilled base of engineers, technologists, technicians, artisans and support staff who are always giving out their best to serve the customers and meet their energy needs. That is not to say everything has been rosy. During my tenure as Board Chairman our colleagues have never received a pay rise and the reason is obvious; the external environment has eroded the ability of the firm in having sustainable operating cash inflows to lock for salary increments. The question has always been a moral one, should we increase the pay checks of our colleagues in the midst of massive load management? But I recognize that the short term remains painful and I'm very aware of the impact this has on our colleagues.

Stakeholder Engagement

We believe that our business can only be everyone's business if stakeholders are given equal opportunities to participate in our business. The revenues from our customers are ploughed back into society to benefit the communities through investments in the following capitals; natural, manufactured, intellectual, human, financial and social and relationships. A responsible company must think about its impact on the environment, on its employees and on wider society.

ZESCO is one of the few entities in the country that adopted the integrated reporting framework which does not only focus on profits but on all the six capitals and carefully watches its environmental footprints. We have taken a deliberate stance of having our rural colleagues as part of our human capital, which helps in minimizing vandalism of our infrastructure while improving their livelihoods.

Our Expectations

Looking forward, we believe that with the enactment of the Electricity and Energy Regulation Board (ERB) bills into law, will change the landscape of the industry for the better. We are optimistic on the growth of renewable energy which will help us in embracing the challenges of climate change, and being at the forefront in tackling it, is the right thing to do.

I would like to thank the Shareholder, Lenders, Customers and Management for their support. I wish to commend all the ZESCO employees for their dedication and hard work despite the challenging circumstances.

In conclusion, I would like to also thank the ERB for showing commitment towards migration to cost reflective tariffs by awarding a tariff increase on domestic customers effective 1st January 2020..

Dr. Mbita C. Chitala

Board Chairperson

Managing Director's Statement

Mr Victor M. Mundende
Managing Director

Dear Stakeholders,

2019 presented a challenging operating environment for ZESCO, with climate change affecting hydro generation of electricity at our major power stations, depreciating Kwacha and high tariffs from the Independent Power producers (IPPs) topping the list. These circumstances put significant pressure on our business, despite the growth in customer base, we were not able to mitigate the full impact of these external factors. Consequently, the company posted a negative profit margin. This was compounded by unresolved legal and contractual disputes with some of the mining customers, leading to an increase in impairment of trade receivables.

However, we did deliver operating cash flow of K6 billion in comparison with K4.2 billion in the prior year. In order to increase the productive capacity of the company, investments in fixed assets was an unavoidable option, as such we added new capital investments of K5.2 billion of which 27% was invested in Kafue Gorge Lower Project, and serviced debt of K2.4 billion.

It was a gratifying gesture by the Energy Regulation Board (ERB) to award the retail tariff increments, however, it was way lower than the IPP tariffs and susceptible to foreign exchange currency movements. The domestic tariff structure is in local currency and modeled outside the ever-changing external variables such as foreign exchange rates and inflation which have the potential to cause imbalances between costs and revenues. The path towards cost-reflective tariffs is never an ending journey in an environment where the cost of purchasing electricity from other players in the industry is pegged in US dollars, while ZESCO sales above 50% of its power in the local currency. This distorts the hedging mechanism of IPP tariffs against domestic tariff.

2019 Context

2019 was a very challenging year for the ZESCO team, with a significant number of colleagues leaving the company as we continued with our business transformation and efficiency programs. We lost 256 colleagues from dismissals, discharges, redundancies, normal retirements, medical retirements and resignations. Sadly, we lost 23 of our colleagues through deaths, one life lost is one too many and this is evidenced in the investments we have pooled as a company in enhancing the health of our members of staff. Despite these pressures, the ZESCO team performed fairly well such as; the management of distribution losses closed at 11.22% which was below the ERB target of 12% and the increased customer base by 58,000 against the target of 66,000. Sadly, the success in growing the customer base, does not translate to an increase in the return on investment as costs are still higher than revenues.

Having summarized the year, let me now return to some of the major events, milestones and deliverables which characterized 2019.

Key Developments

The construction of the 750 MW Kafue Gorge Lower Hydro Power Plant is being undertaken by Sinohydro Corporation of China under an Engineering, Procurement and Construction (EPC) plus Financing Contract. The project reached 80%

completion at the end of 2019.

Through deliberate repositioning in the Region by being active players, ZESCO as a member of the Association of the Power Utilities of Africa (APUA) hosted a meeting in Livingstone in May 2019. Regional meetings are at the core of our strategy as they help in building regional integration, knowledge sharing at both financing and technical facades.

Parliament of Zambia enacted into law the Electricity Act, which will result into Open Access Regime that will freely allow electricity generators (players) to supply directly to customers without ZESCO being the sole off-taker. This will serve the corporation from signing off Power Purchase Agreements (PPA) hedged in US Dollars while selling power to domestic customers in Kwacha. The Electricity Act will result in the establishment of Systems Operator to operate the transmission network system, which will give access to all players in generation to transmit the power by charging wheeling cost. In the current legal framework, the ERB has no power in adjusting the tariffs driven by the Power Purchase Agreements. The ERB Act will give more authority to the Regulator to adjust tariffs even if the customers are governed by the PPAs.

Operational Progress

Notwithstanding the challenging context I have outlined, 2019 was a year where we made significant progress in cost cutting measures particularly in staff related allowances and privileges, training, travels and accommodation. At the time that the cost of living is going up, my management sympathizes with my colleagues at different levels of the corporation, to painfully hold on as we overcome the storm. They have shown resilience and commitment to the vision, which has been visibly shown in calmly understanding the reasons for no salary increment for over three years.

I am pleased to say that customer relationships and customer numbers are moving in the right direction. I recognize that we could have unsettling views from a wide range of retail customers over the new tariffs. As a result my management will spend more time sensitizing and interacting with them on issues that border on ZESCO's cost structure and discuss our challenges transparently as an assurance that every Ngwee from our customers is deployed to value adding activities.

The Cost of Service Study was commissioned by the Energy Regulation Board (ERB) and this gives confidence to ZESCO that tariffs will migrate to cost reflective levels.

Our Colleagues

As a business, the changes we have been making to set ourselves up for success in the challenging new operating environment have resulted in a lot of doubts for some of our colleagues in ZESCO. This is witnessed by a number of people requesting to separate from the company, I recognize how difficult this has been for many of them and am humbled by how many have persevered and look into the future with optimism. I want to thank them for having remained committed to doing the best for our customers and to deliver excellent operations across the company.

Our workforce has decreased by 4% to 6,740 at the end of 2019. During the year, two of my colleagues in Corporate Management, Directors Changala Nswana and Dennis Banda services' came to an end and were replaced by Patrick Mwila and Yona Sichalwe respectively. At the end of the year, the Director of Finance's contract Saidi Chimya came to an end and was replaced by Emmanuel M. Banda. I would like to wish the three former Directors well in their future endeavors and their contribution towards the goals of the Corporation will never be undermined. I implore the new team, to work even harder and diligently serve the interest of the shareholder.

Regulatory and Political Landscape

I do recognize that we are a business that operates at the behest of our policymakers and regulators, the space that we are allowed to occupy is determined and defined by them. The two Acts (ERB and Electricity) enacted by Parliament in 2019 will change the business landscape of the entire industry and the full financial impact to our business may be too early and hazy to ascertain, however, we remain resolute and optimistic.

Green Investments

The corporation is investing in renewable energy and this is part of the strategic intent to diversify our electricity sources by entering strategic business alliances with firms that have demonstrated competencies in finance mobilization and development of renewable energy projects. Management will be very cautious with which projects to undertake and will use a basic principle that prioritizes projects whose returns are equal or higher than the weighted average cost of money.

Conclusion

In summary, 2019 has been a very challenging year bewildered by factors in the external environment as already enumerated. It is clear that our strategy remains stable and our commitment towards the customer is unchanged.

We have significant momentum as we enter 2020, we see a green future where most of the investments will be biased towards renewable energy.

Meteorological projections suggest favorable rainfall pattern for 2020/2021 rainfall season across the country. This gives us confidence of improved water levels leading to reduced load management.

Mr Victor M. Mundende

Managing Director

Customer Focused

Customers continue to be the main reason we are still in business. Our growth is extremely essential as part of our core values is making it easy for people to live a better life. The more we connect our customers, the more revenue we make, the more efficient they become and live an improved and better life.

We have not only ended at giving access to electricity but also the experience thereafter. Our dedicated teams have come up with many measures to ensure the customer has the best after sales service and also have a well manageable bill.

Our domestic customer base grew by 6% from the previous year's 957,756 customer base.

Demand Side Management (DSM)
In the period under review, DSM focused on the following main areas:

- Energy Efficiency interventions that primarily focused on low cost interventions to help customers manage their consumption
- ZESCO's path to full deployment of Advanced Metering Infrastructure (AMI); i.e. Smart Meters, HES, Meter Data Management System (MDMS) and integration of Back-End Systems (BES) to MDMS, first, in Distribution Directorate and Commercial and Customer Services. These meters will enable remote control of the meters and timely notification should there be any tempering or fault.
- Working on a lasting-solutions to meter tracking to reduce malpractices in the utility that may in turn affect our service delivery
- CFL distribution and LED installation
- The initiative to distribute 4 million LED bulbs is envisaged to result in power saving of about 180MW. This equivalent to building a generation plant of similar capacity at a cost of not less than USD 300 million in not less than 4 years. For the year 2019 the division had set out to save 150MW from the following areas interventions;
- Lighting (1,000,000 LEDs) 45MW
- Industrial Energy Management Opportunities - Energy Audits - 2MW
- LPG heating 1MW

Call Centre
In ZESCO Limited's quest to be the Hub of power trade in the region, excellent customer services is expected. In the period under review, to enhance the customer experience and quality service delivery, we launched the new ultra-modern National Call Centre.

The National call Centre is expected to meet the demands of the ever growing customer base (Domestic) that stood at over 1 million customers.

The opening of the Call Centre was graced by Energy Minister Hon. Mr. Matthew Nkhuwa (MP) who was flanked by the ZESCO Board Chairperson Dr. Mbita Chitala and the Managing Director, Engineer. Victor M. Mundende. This symbolized the importance of the customers to the heart of ZESCO Limited.

The Call Centre will not only take calls but will be a "multi-channel hub" of communication for our customers. The Call Centre was at close of the period in the process of implementing a mobile application as well as a Facebook Chabot amongst other innovations.

The mobile application being developed will put the National Call Center in the palms of the customer. This simply implies that customers will be able to report faults using the software application in the comfort of their homes or offices.

In addition, customers will be able to utilize the application for one-to-one interactions with ZESCO. The Facebook Chabot will further facilitate live chat communication with our customers and ensure the speedy delivery of quality services.

Customer Compensations
As we strive to serve our customers with safe and reliable power, certain instances within the system makes our customers suffer some loss due to under or over voltages. These cases lead to our customers either having their appliances damaged of indeed other damages.

During the period under review, a total of eleven (11) claims were successfully compensated while one Hundred and three (103) were declined. These claims related mainly to cases of damaged household electrical appliances and burnt buildings. All cases are seriously investigated therefore in the declined cases, it was determined that ZESCO Limited could not be held liable and the affected customers were advised accordingly on the importance of the provision of effective backup surge protection, good earthing systems and up to standard electrical house wiring at their premises beyond the metering point, as well as the careful handling of all ZESCO installations.

Third Party Vendors (TPV)
In trying to make it easier for our customers to trade with us, Corporate Customer Services division contracted a number of new vendors in Lusaka, Northern and Southern Divisions.

During the period under review, the Corporation had in full operation two (2) Super vendors Kazang and Necor Zambia. Both vendors, whose performance was initially being brought into question, have since improved in terms of re-stocking and sales performance therefore not inconveniencing our customers.

Innovation & Development

As we strive to find answers today for the questions of tomorrow, we go an extra mile with our focus on research and development to cater for the needs of our customers. As a business, we will continue facing challenges that have a potential to affect the bottom-line. We accept these challenges gladly and constantly develop methods of delivering value to our customers.

Coupled with the development and creative units in our operating divisions, we have continued to innovate processes, develop concepts and technologies that enable us to deliver our promise to customers and subsequently lead to the achievement of our mission and vision. Some of these innovations include the mobile app and the Facebook Chatbot.

While customers want their concerns to be addressed and resolved quickly by making a few clicks or taps at their convenience, we are alive to the fact that mobile technology is the way to go to deliver world-class customer service. The mobile application being developed will enable our customers with the following:

- Report faults;
- Track faults;
- View prepaid tokens;
- New connection tracker;
- Energy saving tips;
- Safety tips; and
- Locate service centres.

In addition, with the growth of Chatbots, we aim to connect and engage with customers on a new level and improve the overall customer experience by tapping into new resources like Facebook Chatbots. The Facebook Chatbot will facilitate live chat communication with our 70, 000 followers. In the recent past, despite the frequent news updates on our page, most of our followers have been left frustrated and feel unappreciated due to the lack of customer service interaction. Once developed, the Facebook Bot will be added onto our Facebook Messenger service to allow customers to get automated customer service responses. The Bot will be equipped with an automated programmed answer programme capable of responding to simple queries in an efficient manner, this will be far quicker than a person ever could. This will help enhance our clientele's customer service experience and ensure the speedy delivery of quality services.

We are also committed to partnering and investing in qualifying local entrepreneurs as third-party vendors (TPVs). During this period under review, we continued to extend our initiatives in this area by adding more local entrepreneurs to the group of vendors. Among many other notable innovations, we also engaged merchant's sale electricity units on behalf of ZESCO in areas where the presence is limited or completely absent for a commission. This has helped to broaden our reach while significantly providing much needed cash inflows to support these entrepreneurs. These partnerships contribute to make life better for our customers and clients wherever ZESCO is present.

As a corporation, we remain highly committed to reinforcing our internal processes and this is done by introducing new technologies and processes to life. We have also explored possibilities of digitalization across our entire value chain. In so doing, the following initiatives were implemented;

- The budget import from DCS to FMS.
- The e-zesco platform was initiated. The platform will automate all forms and drive the paperless environment.

Our Business Model

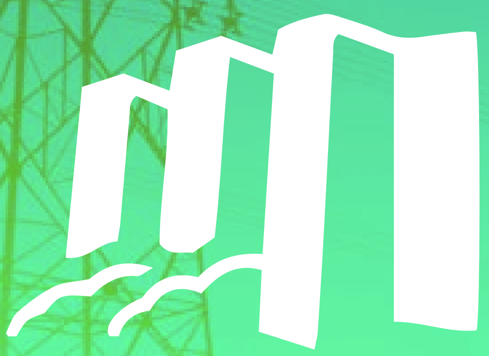
Inputs

Being a 98% hydro based power generator, our major inputs are the water bodies around the country with the major hydro plants in the Southern part of the country. Our well qualified and trained staff run and manage these stations effectively.

Activities

Using our inputs, we ensure that safe and reliable energy is Generated, Transmitted and Distributed. This done with utmost care to the environment and in compliance with regulatory requirements.

Generation



Own Generation

71%

- Kafue Gorge Hydro Power Station
- Kariba North Bank Hyro Power Station
- Victoria Falls Hydro Power Station
- Small Hydros

Subsidiaries & Joint Ventures

- Kariba North Bank Extension Power Station
- Itezhi tezhi Power Corporation

Transmission

Independent Power Producers (IPPs)

28%

- Maamba Coalieries Ltd
- Ndola Energy Corporation
- Lusenfwa Power corporation

Imports

- Southern Africa Power Pool (SAPP)

1%

Represents total generation [**14,169 GWh** fed into the Grid

Outputs

Reliable and safe electricity for the country and to be hub for electricity trading in the region whilst maintaining a well-trained and skilled workforce to manage the complex infrastructure.

9%

Exports

- Southern Africa Power Pool (SAPP)

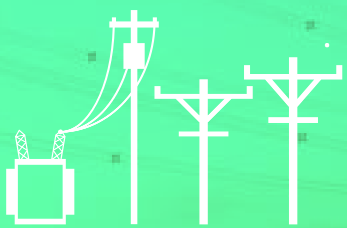
47%

Mines

- CEC, Kalumbila, Kansanshi,
- ZCCZ, Lumwana and others

44%

Distribution, Supply and Customer & Commercial Services



- Residential **19%**
- Maximum Demand **18%**
- Commercial **3%**
- Agriculture **2%**
- Social **2%**

Represents generated power transmitted and distributed into the Grid

Impact

People living a better life with reliable power supply. Improved economic activities. Less use of traditional means of energy hence reduction in environmental degradation.

		2019	2018
Focus on people			
	Employees	2,540,560	1,491,205
	Salaries & wages	2,525,000	1,473,000
	Training	15,560	18,205
Regulation			
	Government	345,301	350,503
	ERB fees	123,931	78,636
	Employee taxes (PAYE)	188,561	244,059
	Other subscriptions/ licences	32,810	27,808
Community Management			
	Community	5,844	5,816
	Donations	5,844	5,816
Overheads and capital expenditure			
	Suppliers & Contractors	25,351,788	23,773,082
	Operational expenditure	14,876,675	10,217,554
	Capex expenditure(KGL inclusive)	10,475,113	13,555,528
Providers of Capital			
	Finance cost	629,857	554,735
	Interest	629,857	554,735

The Capitals Employed to Create Value

Capital	Related Risk	Related Stakeholder
Natural Capital	1 Climate Change risks 3 Safety, Health, Environment and Quality (SHEQ)	Shareholders & Board of Directors Government Regulators Employees
Financial Capital	1 Climate Change risks 6 Political and Legal Risk 3 Safety, Health, Environment and Quality (SHEQ) 5 Digital Technology & Information Systems 4 Asset Management Risk 9 Strategy Delivery 8 Regulatory Risk 10 Financial Processing and Reporting	Shareholders & Board of Directors Government Regulators Investors & Lenders Suppliers Local Govt. Authorities, Traditional Chiefs & other Authorities Employees Clients and Customers
Manufactured Capital	1 Climate Change risks 2 Cyber, Security and System Resilience 3 Safety, Health, Environment and Quality (SHEQ) 5 Digital Technology & Information Systems 4 Asset Management Risk 6 Political and Legal Risk 8 Regulatory Risk	Shareholders & Board of Directors Government Regulators Suppliers Employees Clients and Customers
Social and Relationship Capital	3 Safety, Health, Environment and Quality (SHEQ) 8 Regulatory Risk 6 Political and Legal Risk 9 Strategy Delivery 7 Stakeholder Management Risk.	Shareholders & Board of Directors Suppliers Local Govt. Authorities, Traditional Chiefs & other Authorities Local Community Employees Clients and Customers Media
Human and Intellectual Capital	2 Cyber, Security and System Resilience 6 Political and Legal Risk 3 Safety, Health, Environment and Quality (SHEQ) 8 Regulatory Risk	Shareholders & Board of Directors Government Regulators Local Community Employees

Related Strategic Focus area

- Strengthening Our Core Business - **Our operations reliably deliver electricity to local and regional markets.**
- Delivering Value to Our Customers - **Customers have electricity that meets their needs.**
- Enhancing the use of Innovative Technology - **We are using our digital capabilities to improve our operations and benefit the communities in which we operate.**
- Unlocking Value of FibreCom - **Our business offers affordable access to ICT for improved standard of living in Zambia**

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Stakeholder Engagement

Delivering value to our customers by ensuring that they have electricity that meets their needs is fundamental to achieving our business strategy. We are closely collaborating with our stakeholders on agreed activities in becoming a hub of electricity trade in the region.

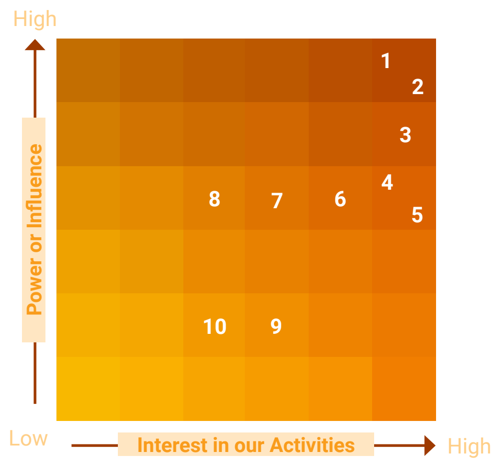
Stakeholder engagement is critical at every stage of our business activities. It aims to nurture constructive relationships to secure our license to operate. It is an inclusive two-way process that is aligned with our core values and guided by our Code of Ethics. As we engage with stakeholders, we adhere to business Ethics, environmental management, Human rights and diversity, community and socio-cultural aspects.

We identify our key stakeholders based on the influence on our business decision making processes. Based on this assessment, we categorise these relationships as either collaborate, involve or consult. While we engage with all stakeholders, we have identified our principal stakeholder groups below.

Stakeholder Mapping

Key:

Power = Level of Authority;
Influence = Level of Active Involvement;
Interest = Level of Concern or interest in our activities



1. Shareholders & Board of Directors

Power/ influence

Interest in our Activities

Nature of Relationship: Strong

Frequency and Engagement Methods

REGULAR

Group Meetings, One-on–one Meetings and Written reports.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Buy-in/support into the Company's strategic objectives
- Arm-length relationship
- No interference in day-to-day running of company affairs
- Be advocates/lobbyists for positive policy changes

What are their interests?

- Organizational Strategy that is aligned to shareholder & GRZ goals
- Good Organizational Performance (KPIs)
- Return on Investment (ROI)
- Regular/ High Dividends
- Institutional Governance

2. Government

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

SELDOM

One on one meetings, Written reports submissions, Commissioning of significant Projects.

Capital(s) contributed or Impacted

Expected Output and Outcome

- We focus on maintaining good working relations with governmental authorities by
- Keeping them appraised of any new developments at our operations and projects.
- Buy-in/support into the Company's strategic objectives
- Support through policy enactment & implementation
- Government financial Guarantees
- Less resistance facilitator of new policy implementation

What are their interests?

- Countrywide Electrification/ Power to Support economic and social development
- Infrastructure development
- Improvement of social wellbeing of citizens
- Complying to rules & regulations
- Capacity & Security of Supply
- Low cost of services to citizens
- Wealth creation for citizens

Read more about our Stakeholder Engagement Methods on page 24

3. Investors & Lenders

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

SELDOM

One- on- one Meetings, Group Meetings/ seminars.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Cooperation/ projects Support
- Project Financing/ support

What are their interests?

- Institutional Governance
- Financial Performance
- Ability for ZESCO to pay back loans

4. Employees

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

FREQUENT

REGULAR, Electronic Communication, Internal Bulletins, Publications, Safety Meetings, Staff Broadcasts, Meetings & Workshops

Capital(s) contributed or Impacted

Expected Output and Outcome

Engaging our employees is aimed at promoting

- Good labour relations,
- increasing productivity and maintaining a focus on our strategic objectives.

What are their interests?

- Personal development
- Better Remuneration
- Re-skilling & Training
- Unethical conduct of employees attributed to the shortage of materials.
- Weaknesses in systems and processes and remedial measures in the Corporation.
- Management of conflict of interest, gifts and benefits and whistleblowing.
- Better conditions of service, employee welfare and medical schemes

Read more about our Stakeholder Engagement Methods on page 24

5 . Suppliers

Power/ influence

Interest in our Activities

Nature of Relationship: Strong

Frequency and Engagement Methods

REGULAR

Group Meetings/ One on one meetings, Written notes.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Credible/Trustworthy partners in supply chain management & project implementation
- Speed of delivery
- Quality of products/ services

What are their interests?

- More business/ supply contracts
- Meeting Payment deadlines

6. Regulators

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

SELDOM

One on one meetings, Written reports submissions, Commissioning of significant Projects.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Licenses issuance
- Allow Higher tariffs
- No objection to projects & activities
- Fair decisions/ arbitration
- Equitable Access to resources
- Moral support

What are their interests?

- Institutional Governance
- Technical Performance
- Financial Performance
- Equitable electricity tariffs
- Environmental sustainability
- Transparency
- ZESCO to meet set KPIs or benchmarks/standards

7. Media

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

REGULAR

Interviews, Facility Tours, Media Workshops.

Capital(s) contributed or Impacted

Expected Output and Outcome

- We partner with the media in most of our activities because they are fundamental in reporting accurate representation and understanding of the corporation to inform the public and other stakeholders.
- The media are also key in fostering constructive relationships with other stakeholders.

What are their interests?

- Stories on ZESCO that sell
- Stories of significance to the public

8. Clients and Customers

Power/ influence

Interest in our Activities

Nature of Relationship: Strong

Frequency and Engagement Methods

FREQUENT

Digital & printed Media, Town Hall Meetings, Corporate Social Investment (CSI), Town hall meetings, Customer Engagements.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Support
- Good image/perceptions
- Mutual trust

What are their interests?

- Make it easier for them to live better lives
- Transparency in decisions & activities that concern them
- Information

Read more about our Stakeholder Engagement Methods on page 24

9. Local Community

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

REGULAR

Group Meetings, One-on –one Meetings, Written reports.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Buy-in into Projects
- Buy-in into ZESCO Processes
- Public support

What are their interests?

- Connection to Electricity
- Operations/Activities that empower the community
- Improved local economy and social wellbeing

10. Local Govt. Authorities, Traditional Chiefs & other Authorities

Power/ influence

Interest in our Activities

Nature of Relationship: Cordial

Frequency and Engagement Methods

SELDOM

one on one meetings, Written reports submissions, Commissioning of significant Projects.

Capital(s) contributed or Impacted

Expected Output and Outcome

- Buy-in into Projects
- Help to stop Vandalism
- Appreciation of Safety rules & Practices
- Public support
- Afford Land Rights for Wayleaves & servitudes or infrastructure developments

What are their interests?

- Electrification of communities
- Way Leaves & Land use rights
- Lobbying for Electricity infrastructure of Constituencies/ communities and towns
- Low cost Power for their communities

Stakeholder Engagement Methods

The Board and management of ZESCO Limited are committed to ensuring transparency to our stakeholders. Accordingly, we provide shareholders with a continuous and timely flow of information in order to ensure that shareholder expectations are aligned with our corporate strategy.

In the period under review, ZESCO Limited carried out several enhancements of its IR programme to effectively engage and communicate with its stakeholders. In keeping with best practice, the corporation employed various channels of communication to provide information to its shareholders:

Channel	Why we use these channels	2018 highlights of the activities undertaken
Integrated Reports	Concise communication about how our organization's strategy, governance, performance and prospects lead to the creation of value over the short, medium and long term are document though our Integrated reports.	Our Reports are produced in paper and electronic formats and posted to shareholders and other stakeholders.
Website and Facebook	Our online media platforms have proved to be a go-to resource of information for online users.	The Corporation's has been using its Facebook page and the website consistently to post updates on various events and activities as well as notices and announcements. At the end of the year, our page had 70, 000 followers with an average of 15, 000 post reach. We have also taken advantage of our technology to create value for the community through provision of various vending options such as mobile phones, banks, vendors, super vendors and aggregators.
Press Briefings	Press Briefings increase understanding of ZESCO projects and operations as well as enhance corporate image.	We use press briefings to address and important news (e.g. Commissioning's, Product launches) connected to our strategy and involves the participation of journalists and representatives of the company/organisation. Our media briefings are interactive in nature to allow journalists find out more about the organization than via press releases and they give journalists the opportunity to ask questions and set up interviews.
Exhibitions, Seminars, Shareholder Association Meetings	The corporation uses such platforms to Increase understanding of ZESCO projects and operations as well as enhance corporate image. This platform helps showcase ZESCO's support to the manufacturing sector, enhance corporate reputation and demonstrate corporate/civic leadership. In addition, exhibitions help facilitate Corporate management meet with shareholders and other stakeholders to discuss the Corporation's performance, strategy and other concerns of benefit to all shareholders. The Corporation considers it important to hear from representatives of various shareholder associations in order to fully accommodate concerns and advice from our shareholders.	Exhibition for Investors, Suppliers and Distributors of alternative sources of energy in Lusaka and Kitwe - The exhibition provided a platform to bridge the gap between distributors and suppliers of alternative sources of energy and the public. The exhibition was aimed at promoting renewable energy, energy efficiency, and sustainable living through clean energy. SAPP Congress

Channel	Why we use these channels	2018 highlights of the activities undertaken
Facility Visits	Facility visits increase levels of understanding and acceptance of the organizations' products and services by external stakeholders	ZESCO LTD Board tour of Kafue Gorge Lower (KGL) & Kariba North Bank Power Station (KNBPS) - The ZESCO Board of Directors together with the Director Legal Services were invited for a facility tour at the Kafue Gorge Lower Hydro Power construction project and the Kariba North Bank Power on 10th and 11 October 2019 respectively. The objective of this tour was to provide in-depth analysis regarding the operations of the power station and the future plans in power generation in order to mitigate the current load shedding.
Sensitization Campaigns,	We use sensitization campaigns to increase awareness, to inform & Educate.	Anti-Vandalism campaigns - A nationwide sensitization campaign commencing with Copperbelt and North Western provinces to urge all stakeholders to treat the ZESCO infrastructure as their own as everyone stands to benefit from it greatly in one way or another. The main objective of the campaign is to sensitise the communities on the benefits and dangers of electricity, by sharing safety and anti-vandalism information to confirm ZESCO's Mission of Making it easy for people to live better lives. Customer Integrity Awareness sensitisation campaigns - Awareness sensitisation campaigns were carried out in the period under review to raise integrity awareness. This activity made a good fit for us to educate our clients and customers on the role of the Integrity Committee. Customers were encouraged to reject, resist and report corruption and that delayed service is no justification for corruption. Moreover, our employees were urged to uphold integrity and concerns about delayed service to be brought to the attention of Management.
Charitable Donations and Sponsorships.	We use Charitable Donations and Sponsorships to contribute towards the sustainable development of society and the environment.	Renovating of Hillside primary school in Chunga - To give back to the community by contributing to the betterment of the education system in Zambia and to build mutual relations. Sponsoring and taking part in traditional ceremonies
Media tours	To improve accurate and factual reporting by journalists about ZESCO's projects, operations, products and services.	Media Training Workshop Kitwe - Our media engagements are transparent, covers a range of matters, facilitates understanding of ZESCO's activities, and promotes accurate reporting and constructive relationships with other stakeholders.
Media Interviews and workshops	Media tours help journalists familiarize themselves with the operations and to equip them with factual information for transmission to the public.	The media interviews provide a platform and an opportunity to respond to queries and concerns raised by our stakeholders and the general public. They are also aimed at updating the customers on the power generation status, clarification on the electricity tariffs and Load Management. The sponsorship of the 19:00hours network news on ZNBC TV1 and the sponsorship of 'I heard segment' on Millennium radio 90.5 fm - Millennium radio is a popular community radio station that covers Lusaka, Southern and Central Provinces of Zambia. Sponsoring the two shows gave us the privilege of educating and informing our customers and other stakeholders on our institutional activities and product launches. The weekly newspaper column 'ZESCO Chat' - The weekly newspaper column in the Zambia Daily Mail was launched in the period under review. Articles written are aimed at enhancing information sharing and dissemination about projects and activities that are undertaken by ZESCO. The articles are also meant to inform and educate stakeholders about various customer initiatives being implemented to ease the lives of customers. This will in turn promote our corporate image.
One-on–one Meetings, Group Meetings, Town hall meetings & Customer Engagements	Inform, Engage and Educate stakeholders to Increase their understanding of ZESCO projects, products and services. Meetings and Customer Engagements facilitate an opportunity for interactive interaction between the stakeholders and ZESCO. Information is readily available and given out instantly. Further, many issues are clarified and the company addresses other concerns in regards to improved service delivery.	The National Energy Sector and Allied Workers Union (NESAWU) and the Power Generation and Allied Workers Union of Zambia (POGAWUZ) - The two unions were engaged to discuss our represented staff's conditions of Service and on the submission of the National Health Insurance Scheme. ZESCO/ERB Community Awareness Meeting - The meeting brought together stakeholders in Chilenje and surrounding areas to discuss major developments, notable efforts made to spur economic development in the energy sector and challenges faced. Matero stakeholders meeting - The aim of the meeting was to update customers on the current Transmission Switchgear retrofit project the company has been undertaking and the benefits this will bring to the area. Invited stakeholders included the Lusaka Mayor, Ward councilors, Community leaders, Market leaders, Matero, the media and other stakeholders. Customer engagements - were organized in Lusaka and Kabwe. The customer engagements were aimed at having closer interaction with customers and answer their questions one on one.

Finance Director's Statement

"Our major objective remains to achieve financial and operational stability while realizing value for the shareholder and the broader public."

Mr Emmanuel M. Banda
Director Finance

I am honoured to highlight to you the 2019 financial performance for the ZESCO Limited Group.

Group Revenue
Revenue for the group closed at K10.3 billion representing an 8% increase over 2018 due to the depreciation of the local currency which led to increases in the mining and export categories which are foreign denominated. However, the residential and commercial categories recorded reductions mainly due to load management following reduced rainfall during the 2018/19 season.

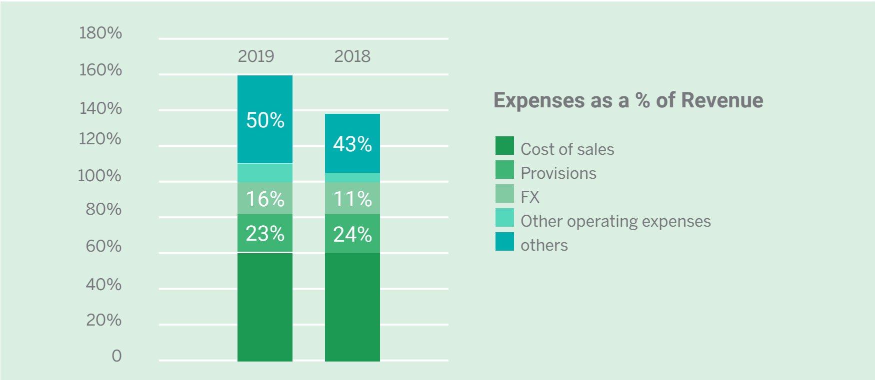
Revenue Category (K 'million)	2019	2018	+/-	%^
Mining	6,203	5,324	879	17
Residential	1,386	1,597	(210)	(13)
Industrial and Agricultural	1,277	1,239	38	3
Exports	1,151	1,063	88	8
Commercial	309	311	(3)	(1)
Total	10,326	9,535	791	8

Cost of Sales
The cost of sales in the period increased to K5.7 billion, a 9% increase over 2018 mainly due to high cost of power from Independent Power Producers (IPP). The savings realized from the suspension of power imports were also overshadowed by the cost of these purchases which continue to erode profitability as they are also dollar denominated and therefore negatively impacted by the depreciation of the local currency. In addition, power purchases

from renewable sources (Bangweulu & Ngonye) were contracted. The cost of electricity purchases, which far exceeds the average tariff at which ZESCO sells to its customers, remains a major concern at 60% of turnover.

Cost of Sales (K 'million)	2019	2018	+/-	%
Local Purchases	4,165	3,610	555	15
Direct Labour Costs	876	855	21	2
Maintenance Costs	341	320	21	7
Power Imports	178	10	168	1673
Generation Water Usage Costs	90	80	10	12
Local Wheeling Charges	110	94	16	17
Export Wheeling Charges	2	9	(7)	-80
Emergency Power Imports	-	307	(307)	-100
Total	5,762	5,286	476	9

Operating Expenses and Profitability
Group profitability was also mainly impacted by exchange losses on foreign denominated obligations and provisions for doubtful debts.

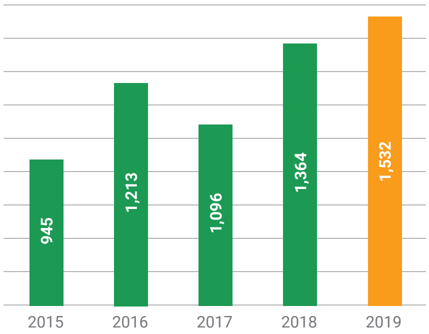


EBIDTA
Despite the gross profit margin recorded a marginal drop, EBIDTA deteriorated into a negative position, a situation which calls for immediate attention to ensure viability of the business. This was caused by exchange losses and an increase in provisioning expenses.

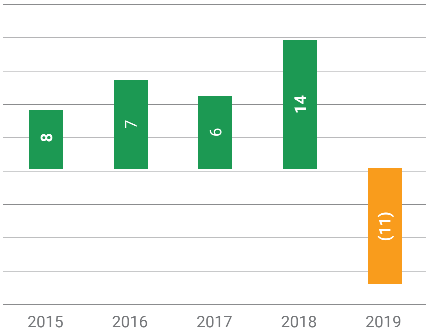
EBIDTA Margin (K 'million)	2019	2018
Loss / Profit Before Tax	(5,939)	(2,722)
Add back: Non-cash items		
Finance Costs	630	555
Depreciation and Amortisation Expense	1,975	1,974
Amortisation of Capital Grants and Contributions	(174)	(151)
Exchange Losses	2,342	1,652
EBIDTA	(1,166)	1,308
Revenue	10,326	9,535
EBIDTA Margin	-11%	14%

Group Financial Overview

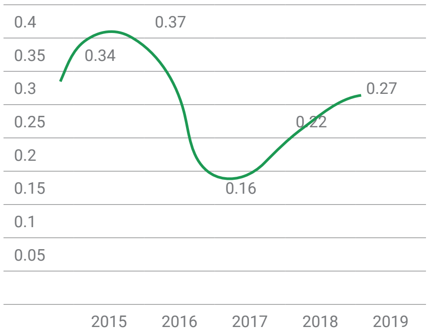
Revenue Per FTE (K '000)



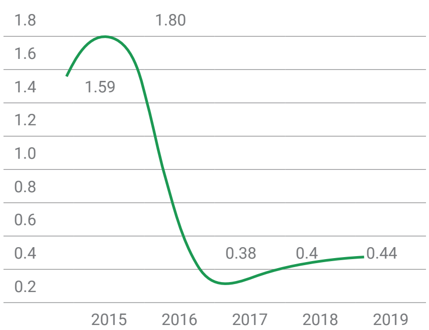
EBITDA Margin



Asset Turnover



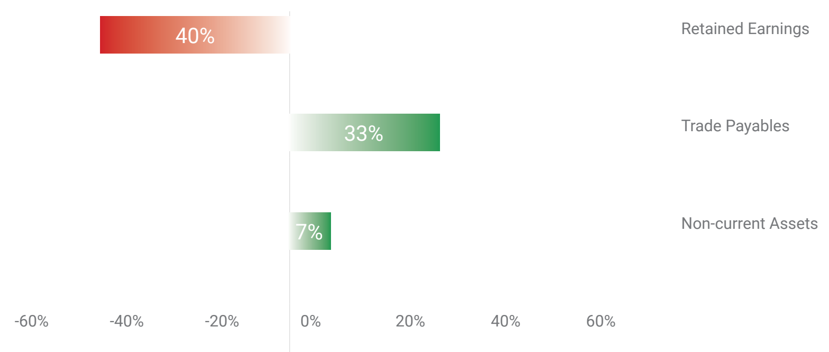
Gross Profit Margin



Group Cash flow, Net Debt and Balance Sheet
The group recorded a 28% drop in the cash and cash equivalents mainly due to continued investment in the Kafue Gorge Lower Power Station and other capital investments, while the cash generated from operating activities increased over the two years from K4million to K6million representing a 42% increase. This was on account of movements in working capital.

The net debt recorded a 31% rise over the period due to additional borrowings and impact of the Kwacha depreciation on foreign denominated long and short-term obligations. Cash and cash equivalents on the other hand marginally increased by 7% compared to 25% and 31% increments in long and short term liabilities respectively.

Movements (2018 to 2019)



Current Liabilities continued to soar to K24.5 billion by 46% from 2018 due to the accumulation of trade payables for power purchases, which account for over 80% of the total at year end. Non-current assets on the other hand only increased by 7%. Net assets recorded a significant drop of 18% to K19.5billion mainly on account of the loss for the year.

Challenges

During the past year, we continued to face a number of challenges that threatened the viability of the business. Chief among the challenges remained the reduced generation due to low water levels culminating from the drought experienced across the Southern part of the country. As a consequence, load management adversely impacted our turnover. In addition, cost of sales increased due to the depreciation of the local currency. The purchases of electricity from IPPs are dollar denominated.

Further, the translation of foreign denominated trade payables and other long-term liabilities resulted in huge exchange losses, which were compounded by the resulting penalties from delayed settlement of such dues. Exchange losses in 2019 at K1.7 billion represent an increase of 60% over the previous year.

The situation was worsened by the huge trade receivables arising from disputed mining debt, water utilities and other government departments which have been provided for under IFRS 9. The provisions during the period amounted to K2.3 billion, an increase of 78% over the previous year. The provisions represent 23% of turnover from only 14% the previous year. Should the local currency continue to depreciate against major trading currencies, the proportion of the provisions will increase and likely erode profitability further.

To optimize water usage and to increase productive capacity, ZESCO continued investing in the development of the 750MW Kafue Gorge Lower Hydro Power Plant and other capital projects such as the Musonda Falls Mini-Hydro Plant. These investments are financed through debt and equity; which is foreign currency denominated. During 2019, a total of K0.6 billion was spent in Finance costs compared to K0.5 billion the previous year. In addition, K2.4 billion was spent on repayment of borrowings, 44% over the previous year.

These and other challenges negatively impacted profitability and consequently eroded equity.

Mitigating measures

Despite the many challenges faced, we remain confident of the success of the initiatives and regulatory reforms engaged to turn around the financial fortunes of the group.

- The renegotiation of some of the tariffs with IPPs is expected to yield favorable results and consequently lead to reduced cost of sales to manageable levels thereby improving liquidity as the increase in trade payables will significantly be halted. The freed-up liquidity can then be used for re-investment in and expansion of the power system.
- In addition, ZESCO continues to engage with government to clear outstanding government debt through debt and cheque swaps.

Some of the regulatory reforms have been initiated and realized this year such as the enactment of the Electricity Act and the Energy Regulation Board Act. Among the major benefits to the group, the two (2) pieces of legislation will allow for:

- The Regulator to approve, review and regulate Power Purchase Agreements and Power Supply Agreements;
- Relief to ZESCO from being the sole off-taker as this allows power producers to sell directly to the customer.

These reforms are expected to improve the cost structure and profitability arising from;

i. Avoidance of lengthy tariff disputes;
ii. Avoidance of unsustainable power purchase contracts; and
iii. Additional revenue stream such as ancilliary services.

In addition, the Regulator awarded a 113% average tariff increase on electricity sales to domestic customers during the year. Further, discussions are underway with major IPPs to renegotiate the tariffs for power to sustainable levels. Once these tariffs are reviewed, it will curtail the accumulation of debt.

During the year, the Board of Directors approved cost control measures. These include the termination and renegotiation of costly leases. Digital innovation has been at the core of cost control.

The completion of the Kafue Gorge Lower Project (750MW) is expected to mitigate load management through additional generation capacity. The excess will preferably be sold to a US dollar denominated customer(s) to hedge against exchange losses.

The restructuring of long-term borrowings by re-negotiating with lenders for revised tenures and terms for some of the loans that have significantly eroded both liquidity and profitability.

Government approved the implementation of structural reforms which will see an improvement in operational and cost efficiency in the organization.

We have also made strides in exploring renewable sources of energy and other hydro based generation to be located in the Northern part of the country so as to

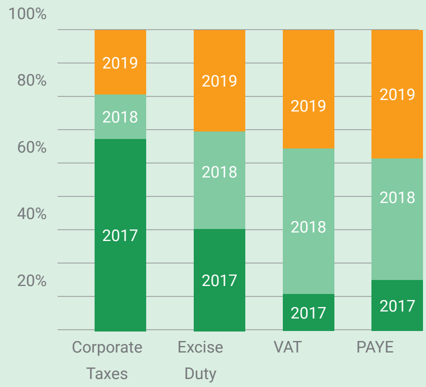
Our View on Taxation

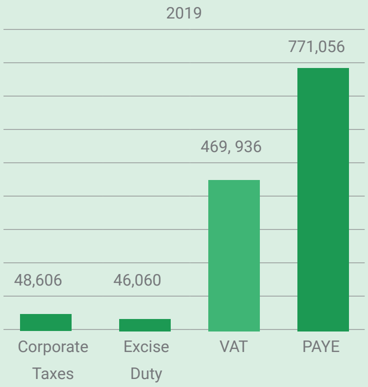
We understand our responsibility to the ultimate success of the nation. ZESCO being a corporate citizen, paying taxes is one of its uncompromised duty. We view paying taxes as a blessing and not a burden. We have contributed to the nation through meeting our tax obligations in the following ways:

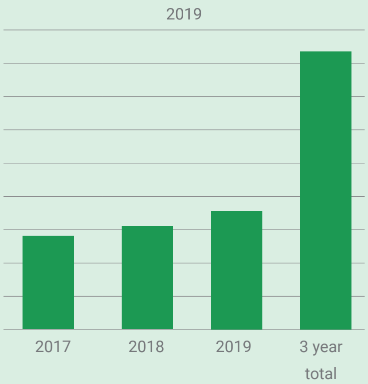
1. Nation building: The success of every nation is partly dependent on the tax-consciousness of its citizens. As a corporate citizen, we understand that running a country requires resources and it is the responsibility of every productive citizen to contribute. This is done through paying a portion of the income or profits to the national treasury for government to provide public goods and services.

2. Social welfare: The taxes we contribute help most of our vulnerable citizens through the government allocating funding to social welfare programs that uplift the lives of the people. It is our firm belief that a well-off community is better placed to sustain our business.

3. Improved services: We appreciate the role of taxes in improving and sustaining the citizens through provision of education and healthcare. As ZESCO we remain of the considered view that paying taxes is an investment rather than a burden.







mitigate hydrological risk.

I am also confident that the much-anticipated cost of service study initiated by the Regulator will yield favorable results to support the attainment of cost reflective tariffs.

These measures should result in ZESCO improving its financial performance in the short and long term.

Conclusion

The need for optimization of capital expenditure cannot be over-emphasized if we are to become profitable. Achieving cost reflective tariffs and reducing high electricity purchase costs while also eliminating and reducing discretionary administrative expenditure will achieve sustainable financial position for ZESCO and value for its shareholder.

Our major objective remains to achieve financial and operational stability while realizing value for the shareholder and the broader public.

Corporate Governance

“Corporate Governance aims to protect the rights and interests of shareholders. This includes building and maintaining cordial relationships between the company and the lenders with the objective to grow shareholder value.”

Leadership and Accountability

ZESCO Limited is wholly owned by the Government of the Republic of Zambia, through the Industrial Development Corporation Limited (IDC).

The Board provides oversight of corporate governance at ZESCO Limited. The Board acknowledges that sound governance principles and practices underpin the creation of value and the sustainability of the business, and are thus crucial to the achievement of the corporate strategy.

The Board recognises that strategy, performance, sustainability and risk are inseparable. Our value-driven culture and Ethics underpins governance structures and processes, committing the company to high standards of business integrity and ethics in all its activities.

The Board is committed to promoting good governance and thus supports the principles and outcomes enshrined in the Board Charter. The Board Charter constitutes, and forms, an integral part of ZESCO Directors' Terms of Reference.

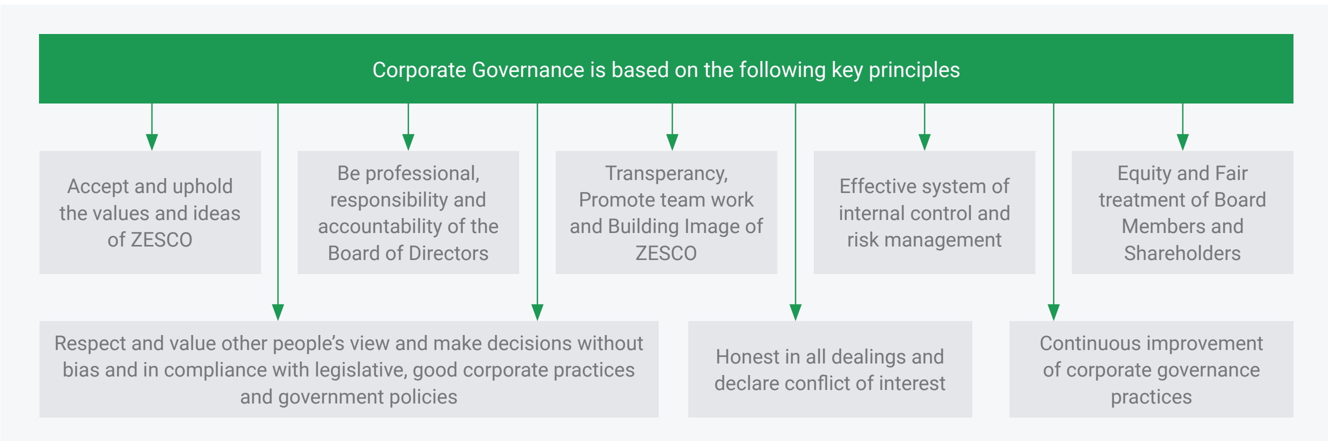
The Board of Directors is governed by the Board Charter, developed in line with the Companies Act and Articles of Association. The Board Charter guides the Board and its Committees in discharging their duties, responsibilities and accountability in accordance with the principles of corporate governance. The Charter binds Board members to principles of Corporate Governance. It recognises that although laws prescribe how directors shall conduct themselves and companies run, Corporate Governance is a commitment to principles that appeal to the individual character that is self-monitored.

Board composition and appointment

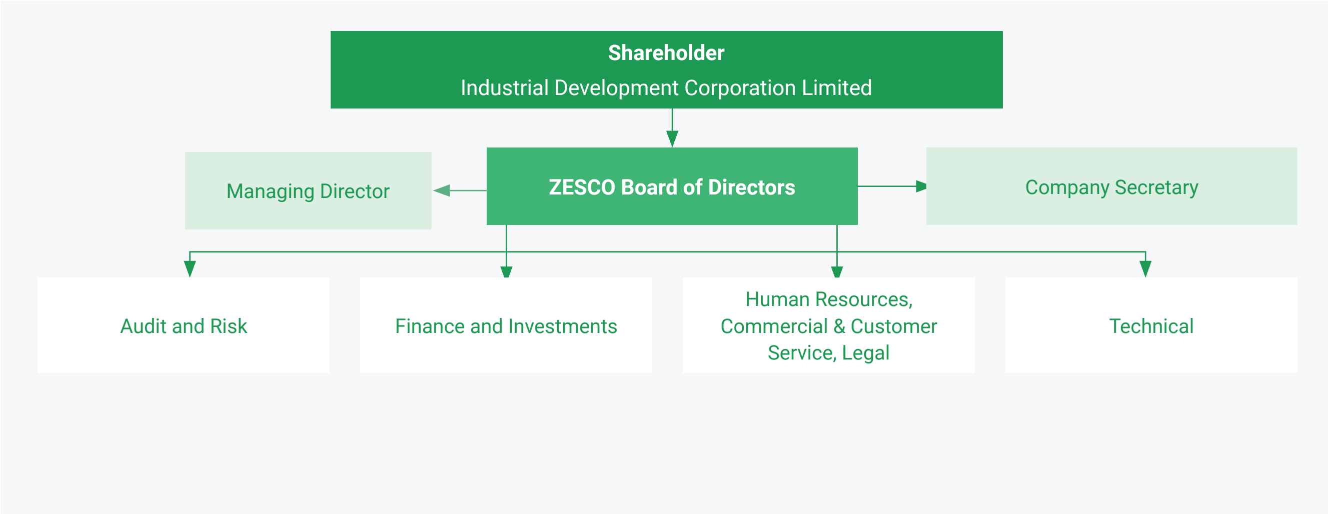
The Directors of the company shall comprise the following;

- The Permanent Secretary or a representative of the Ministry responsible for Sector Policy.
- Not more than five (5) persons from the private sector
- The Managing Director

Key governance principles



Corporate governance structure



Board structure

The Board of Directors is a governing body that sets the tone, develops strategy and determines the risk appetite. The Board of Directors also supervises the Company's executive bodies and performs other key functions, including business planning, performance management and risk management.

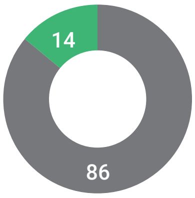
The Board of Directors consists of seven directors and made the following major decisions;

- Approved 2020 budget, which is used as a tool to monitor and control the performance of the Strategy of the company;
- Approved the 2018 audited Financial Statements;
- Approved the Debt restructuring of the Company;
- Approved the tariff renegotiation Strategy with IPPs;
- Approved CEC BSA roadmap post 2020;
- Approved the 2020 Internal Audit Plan;
- Approved Asset Management Policy;
- Approved Assets for Disposal;
- Approved the Enterprise Risk Management Framework;
- Evaluation of Board Performance Assessment;

Board Members and Biography

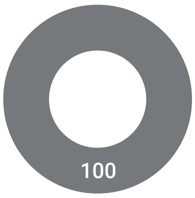
Our Board Diversity

By Gender



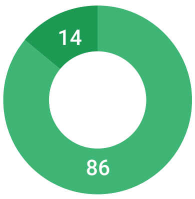
- Male 86%
- Female 14%

By Nationality



- Zambian

By Tenure



- < 1 years
- 1-3 years
- 3-6 years

A F H T

Dr Mbita C Chitala
Board Chairperson - Independent non executive

Appointed: July, 2017.
Experience: Dr.Chitala with a professional career in Public Administration spanning over 30 years in the areas of Project Planning and Management Organisation and Methods.
He has served on various high level Zambian Government portfolios as Deputy Minister of Commerce, Trade and Industry and also of Finance and National Planning.
He has served on numerous boards including National Council for Construction, Comcapital Securities Limited and Pan African Radio Limited among others.

Dr.Chitala is a holder of a PHD – Public Administration from the University of Zambia. He also holds a Master's Degree in Public Administration as well as a Bachelor's Degree in Education both from the University of Zambia.

F

Mr Trevor K Kaunda
Non Executive Board Member

Appointed: September, 2019
Experience: Mr Trevor Kaunda joined the Zambia Public Service in 2008 and served as Director (Social Security) at the Ministry of Labour & Social Security. Since 2012 Mr Kaunda has discharged duties as Permanent Secretary in a number of Government Ministries, including the Ministry of Labour and Social Security, Ministry of Lands and Natural Resources and Management Development Division (MDD) at Cabinet Office. He is currently the Permanent Secretary for the Ministry of Energy.

Mr Kaunda also sits on a number of Government boards and committees such as TAZAMA Pipeline Limited, Zambezi River Authority, CEC Plc and Indeni Refinery Co Ltd.

He has studied in Zambia and is formally qualified Mathematics and Computer Science, Leadership and Wealth Creation and currently pursuing a Master of Arts Degree in Development Policy and Practice with University of Cape Town.

A F T H

Mr Victor M Mundende
Managing Director

Appointed: July, 2017.
Experience: Mr. Victor M. Mundende is the Managing Director of ZESCO Limited. Previously he held the position of Chief Operating Officer a position which deputised the Managing Director.
Mr. Mundende graduated from the University of Zambia in 1991 with a Bachelor's Degree in Engineering and joined ZESCO Limited in the same year. He has worked in various positions spanning from operations in the power plants to development of new power plants in ZESCO's Generation Directorate.

He worked for over 8 years on Zambia's Power Rehabilitation Project (PRP). He has also worked as Director of Generation Directorate.

His responsibilities to the Board include but are not limited to ensuring that the Corporations objectives are met and the execution of the corporations strategy are presented and approved by the Board.

Committee Membership Key:

- A Audit & Risk Committee
- F Finance & Investment Committee
- H Human Resources, Commercial & Customer Services & Legal Services
- T Technical Committee
- Chair of the Committee

Read more about the *Board committees on page 34*

H A

Mr George M Kanja
Non Executive Board Member

Appointed: July, 2017.
Experience: Mr. George Mpundu Kanja is a Lawyer by Profession. He holds a Bachelor of Laws (LLB) degree from the University of Zambia, a Master of Laws (LLM) degree from Queen Mary College, University of London, and a Postgraduate Diploma in Intellectual Property Law from the School of Law, University of Turin, Italy and a Postgraduate Diploma in Human rights from Raoul Wallenberg Institute of Human Rights, University of Lund.
He is bringing his legal acumen to the ZESCO management and Board in his private practice.

T H

Ms. Kavumbu Hakachima
Non Executive Board Member

Appointed: July, 2017.
Experience: Ms. Hakachima is a holder of a Bachelor of Education Degree in Psychology Major and World History Minor obtained from the University of Zambia in 1996.

She has previously served on a number of Social Welfare Councils and Committees, particularly those involving raising awareness within the communities on Child rights and Child abuse issues, dealing with sexually abused Children and Women in hospitals and communication planning for behavioral change.

At the age of 27, received numerous awards and distinctions, including the Reebok Human Rights Award that was presented to her by the Nobel Prize Winner Archbishop Desmond Tutu in America - Salt Lake. She also served as a District Administrator for Chikankata District in 2015.

A F

Mr. Pythias Mulenga
Non Executive Board Member

Appointed: July, 2017.
Experience: Mr. Mulenga is an experienced professional with broad knowledge in finance, accounting, tax, audit and assurance services with work experience in Burundi, Malawi, Tanzania, Uganda and Zambia.

Prior to his appointment with D & G Management Consultants as Director for Audit & Assurance Services, Mr. Mulenga also served as a Senior Manager - Audit & Assurance Services at Abacus360 Chartered Accountants and Senior Audit Manager at PAX Consultants Chartered Accountants.

He has been a member of the Institute of Directors of Zambia (IoDZ), ACCA - Certified Accounting Technician (CAT), Technologist - Mechanical Engineering and a fellow of the Zambia Institute of Chartered Accountants (FZICA) and the Association of Chartered Certified Accountants (FCCA).

F T

Mr. Chibwe D. Mwelwa
Non Executive Board Member

Appointed: July, 2017.
Experience: Mr. Mwelwa is a Procurement specialist. Among other academic qualifications, he is one of the first Zambian to obtain a Master's of Science degree in Procurement from the University of Glamorgan, Cardiff, United Kingdom in 2004.

He is specifically conversant with international public procurement best practices and highly knowledgeable in procedures applicable to implementation arrangements and particularly familiarity with World Bank Procurement Guidelines and Procedures.

With a practical background as an Industrial Engineer and more than 16 years in Supply Chain Management, Public Procurement of Works and Construction Management, he has further become a Supply chain specialist, Procurement and Contract Administration Specialist.

Board committees

The Board has established committees with members playing an important role in assisting to execute duties, powers and authorities. The Board delegates to each of the Committees so established, such authority as is required to enable them fulfil their responsibilities.

Such delegation of authority to Board Committees or Management does not mitigate or discharge the Board and its members of their duties and responsibilities.

The Board Committees include:

- Audit and Risk;
- Finance and Investment;
- Human Resources, Commercial & Customer Services and Legal Services;
- Technical Committee;

Audit & Risk Committee
The Audit and Risk Committee's principal regulatory duty is to oversee the integrity of the group's internal control environment, ensure that financial statements comply with International Financial Reporting Standard (IFRS) that fairly present the financial position and performance.

The following key matters were considered;

- Recommended the appointment of External Auditors for 2020 financial year;
- Recommended to the Board the approval of audited 2019 financial year;
- Recommended approval of 2020 Internal Audit Plan;
- Approved the remuneration of the External Auditors for 2020 financial year;
- Pre-approved all non-audit services in line with the formal policy on non-audit services;
- Reviewed the procedures for detecting, monitoring and managing the risk of fraud;
- • Reviewed the scope, resources, results and effectiveness of the internal audit department;
- Approved the internal audit plan, monitored the execution of the approved plan and approved subsequent changes to the approved plan;
- Recommended for approval the Enterprise Risk Management Framework;
- Considered the impact of adoption of new International Financial Reporting Standards (IFRS 16) effective on 01-Janaury 2019;

Internal Audit
The Group Internal Audit is an independent department, which provides assurance in the internal control environment of the company. The Senior Manager Internal Audit reports functionally to the Audit and Risk Committee and administratively to the Managing Director.

The Audit & Risk Committee reviewed and approved internal audit charter and is satisfied that the internal audit function is independent and appropriately resourced.

The following key matters were undertaken;

- Evaluating the effectiveness of internal controls over financial reporting and internal controls in general;
- Assessing the governance of risk within the Company;
- Reviewing the governance of Information Technology within the Company;
- Assessing compliance with laws, rules, codes and standards within Company;
- Reporting findings to management and the Audit and Risk Committee and monitoring the remediation of all significant deficiencies reported;
- Implementing a combined assurance Framework;

Internal Audit will continue to fulfil the obligations charged by the Audit & Risk committee by providing oversight on the control environment of the Group.

Finance and investment
The Committee assesses the financial performance of the company by examining management reports on a regular basis and providing direction on the nature of investments to be undertaken.

The responsibilities of the Committee include:

- Examine the financial performance of the company by reviewing the financial management reports;
- Examine the Investment Performance report and portfolio;
- Review and examine the guidelines on the investment policy and plan in line with relevant policies and procedures to ensure adequacy and efficiency;

The following key matters were discussed and actioned;

- Examined the financial performance of the company by recommending the Management reports for approval to the Board of Directors;
- Examined the Tax exposure of the Company and recommended the engagement of a Tax consultant;
- Recommended for approval 2020 Budget
- Recommended for Approval Asset Management Policy;
- Recommended for approval Assets for disposal;
- Reviewed CEC BSA Roadmap and recommended for negotiation with revised terms;

Technical
The committee is responsible for overseeing Technical aspects of the company's operations. It reviews Generation, Transmission and Distribution.

The key responsibilities of the Technical Committee shall be;

- To oversee the Company's responsibility of technical reporting processes;
- Design the system of internal project identification, appraisal and reporting;
- Design the process of approval leading to implementation on behalf of the Board;
- Shall also be responsible for the supervision and monitoring of compliance with

The following key matters were considered;

- Recommended to ZESCO to ensure IDC on Solar projects hand over is documented;
- Recommended for approval Technical reports on system performance for 2019 to the Board;
- Considered the need to reduce the Backlog on connection of customers;
- Considered the need to reduce the faults in Distribution;

Human Resources, Commercial and Customer Services and Legal Services
The Committee provides oversight on Human Resources, Customer & Commercial and Legal matters of the company.

The responsibilities of the committee include:

- Receive the various legal cases and make recommendations;
- Review Human Resource plans, policies and processes;
- Corporation's organizational development and executive compensation practices;
- Support strategic business objectives on behalf of the Board of Directors;
- Shall have oversight responsibilities for the Corporation's overall human resources; policies and procedures, including:
  - Recruitment;
  - Performance management;
  - Compensation Benefit Programmes;
  - Resignations/terminations/severance;
  - Training and development;
  - Diversity, succession planning;

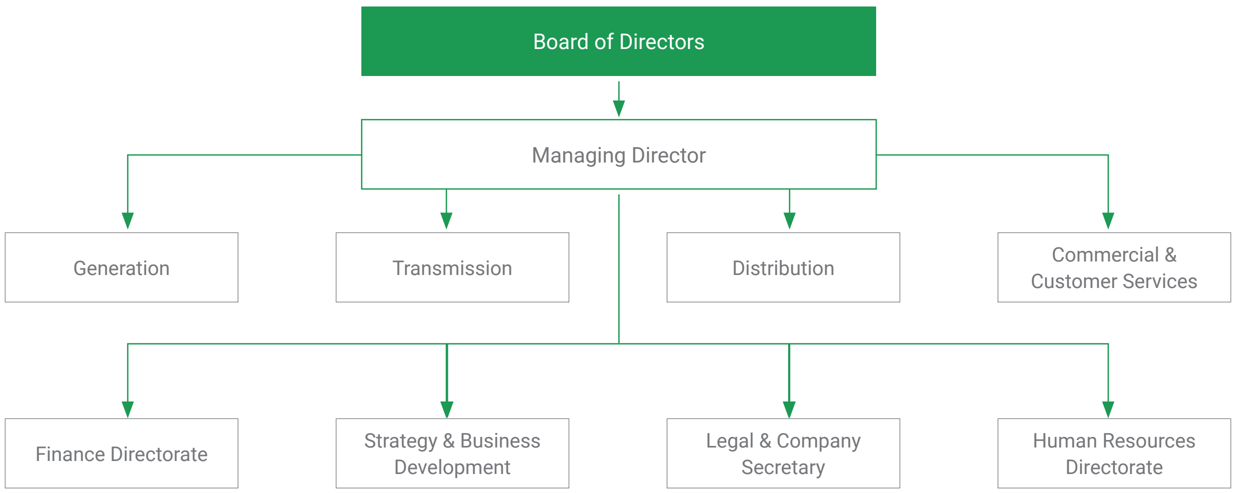
The following key matters were considered;

- Approved Salary Survey Benchmarking with other Institutions;
- Labour optimization by considering the option of outsourcing certain components of the business activities.

Corporate Management

Corporate Management is responsible for managing the Company's operations.

Corporate Management Structure



The following key matters were considered;

- Approved financing for connection of Luangwa to National Grid;
- Approved change in authorized share capital for Kafue Gorge Lower Corporation Limited to allow for equity partnership by NAPSA;
- Approved Medical surveillance Policy to ensure the Health Safety of all employees is guaranteed in accordance with Factories Act.
- Approved Health Policy in which the medical Aids Scheme and HIV/AIDS policy are incorporated to provide a safe and healthy environment for all workers;
- Approved revised condition of service for non-represented and represented staff to re-align with Employment Act of 2018;
- Approved disposal of assets which are classified as obsolete;
- Approved engagement of Super-vendor in Prepaid vending;
- Procurement and stores management

To support our activities, ZESCO operates a centralized procurement system.

Corporate Management Profiles

T

Director Generation
Fidelis Mubiana (53)

Appointed: 6th March, 2015
Experience: He is a holder of B.Eng. Mechanical Engineering obtained from University of Zambia. He has a Master's in Business Administration with Manchester University. He has over 23 years' experience in Engineering Management with technical and managerial skills in Hydro Power Generation.

T

Director Transmission
Webster Musonda (47)

Appointed: 6th March, 2015
Experience: He is holder of B. Eng. Electrical Engineering obtained in 1996 from University of Zambia. He has over 20 years' experience responsible for a broad range of electric power system engineering activities at the detailed design, supervision and management level.

T

Director Distribution
Yona Sichalwe (54)

Appointed: 8th February, 2019.
Experience: He is a holder of a Bachelors Degree in Electrical and Electronics Engineering with a major in Power Systems obtained from the Copperbelt University. He also possesses a Masters Degree in Business Administration from Manchester University. He has over 28 years experience in Distribution Power Systems.

A F

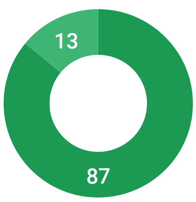
Director Finance
Emmanuel M. Banda (43)

Appointed: 2nd December, 2019
Experience: He is a holder of a Bachelor Degree in Accountancy from Copperbelt University (Zambia) as well as graduate of the Manchester Business School's MBA Program in Banking and Finance, UK. He is also a fellow of both the Chartered Institute of Management Accountants (CIMA-UK) and the Global Chartered Management Accountants (GCMA-UK). He has over 19 years of experience in investment and corporate banking in Zambia, Kenya, Uganda and Tanzania as well as accounting, treasury and consultancy functions with well-grounded skills in debt and capital markets, risk management, strategy formulation and execution, portfolio management.

Committee Membership Key:

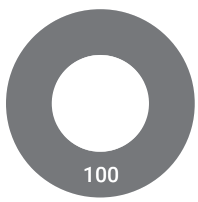
- A Audit & Risk Committee
- F Finance & Investment Committee
- H Human Resources, Commercial & Customer Services & Legal Services
- T Technical Committee
- Chair of the Committee

By Gender



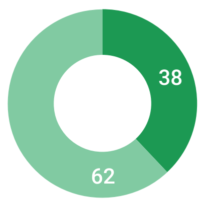
- Male 87%
- Female 13%

By Nationality



- Zambian

By Tenure



- < 1 years
- 1-3 years
- 3-6 years

H

Director Customer Services
Chiti Kabwe Mataka (55)

Appointed: 2nd December, 2016.
Experience: He is holder of Bachelor's Degree in Accounting and Finance from University of Zambia in 1986 and He is a Chartered Certified Accountant, ACCA obtained in 1999. He has vast experience in Accounting and Customer Services having worked as Chief Accountant in Distribution & Customer Services Directorate.

H

Director Human Resources and Administration
Rhoda K Mwale (46)

Appointed: 2nd December, 2016.
Experience: She is a holder of Bachelor of Arts Degree in Industrial Psychology major and a minor in Public Administration obtained from the University of Zambia in 1996 and a Master's Degree in Administration with over 19 years as a Human Resources Practioner. She has vast experience in Human Resources Development and Implementation Strategic Performance Management System.

F

Director Strategy and Corporate
Patrick Mwila (54)

Appointed: 8th February, 2019.
Experience: He is a holder of a Bachelors of Engineering Degree in Electrical Engineering (with bias in Electronics & Telecommunications) obtained from the University of Zambia as well as a Senior Management Development Program (SMDP) Diploma from the University of Stellenbosch (USB). He has over 29 years of work experience covering various cross functions in the power industry from SCADA-Computer Engineering, Telemetry, Information Technology Systems Management, IT project implementation, Customer Services and Utility Billing & Systems Management, to Marketing & Corporate Communications as well as Strategic Business Planning..

H

Director Legal
McRobby V Chiwale (47)

Appointed: 2nd December, 2016.
Experience: He is a holder of LLB Bachelor of Laws Degree, obtained from University of Zambia in 1996 and also holder of LLM in Commercial Law from Birmingham University, UK in 2007. He was formally admitted to the Zambian Bar in 1998 and has over 18years experience of practicing law.

Procurement and stores management

The company has put in place a number of internal controls at each stage of the process to prevent unplanned procurements and wastage of materials.

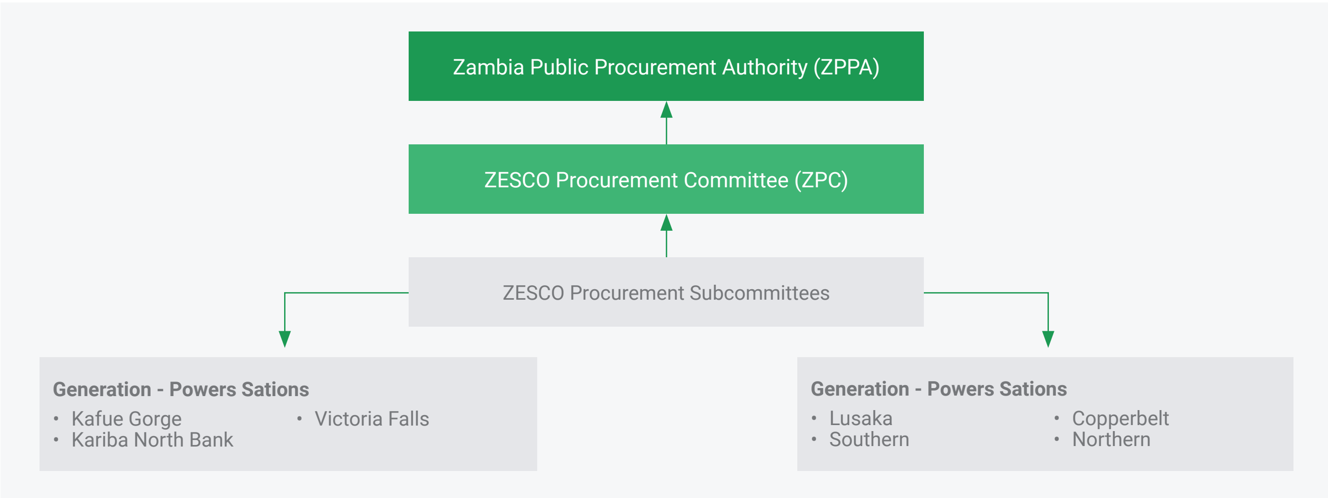
The Public Procurement Act of 2008, as amended in 2011 and internal Procurement Policy govern the company's procurements. The Public Procurement Act established the Zambia Public Procurement Authority as a Regulator to all Public Procurement Entities. The Zambia Public Procurement Authority appoints the Procurement Committees in Public Entities.

The Company's Board of Directors oversees procurement management, approves the annual procurement plan and monitors its progress report on a quarterly basis.

The ZESCO Procurement Committee (ZPC) is a collective body which shapes and carries out uniform procurement policy as well as exercises control and governs coordination of procurement activities. The ZPC Chairperson is responsible for procurement management across the Organization.

The ZPC delegates authority to Procurement Sub-Committees to procure goods, services or works of up to K500,000 and below.

Below is the ZESCO Procurement Structure;



Implementation of the Annual Procurement Plan
In 2019, a total of contracts awarded under procurement amounted to K2.8 billion, below the approved annual procurement plan of K13.7 billion

Summary of activities for 2019
Procurement Improvements in 2019

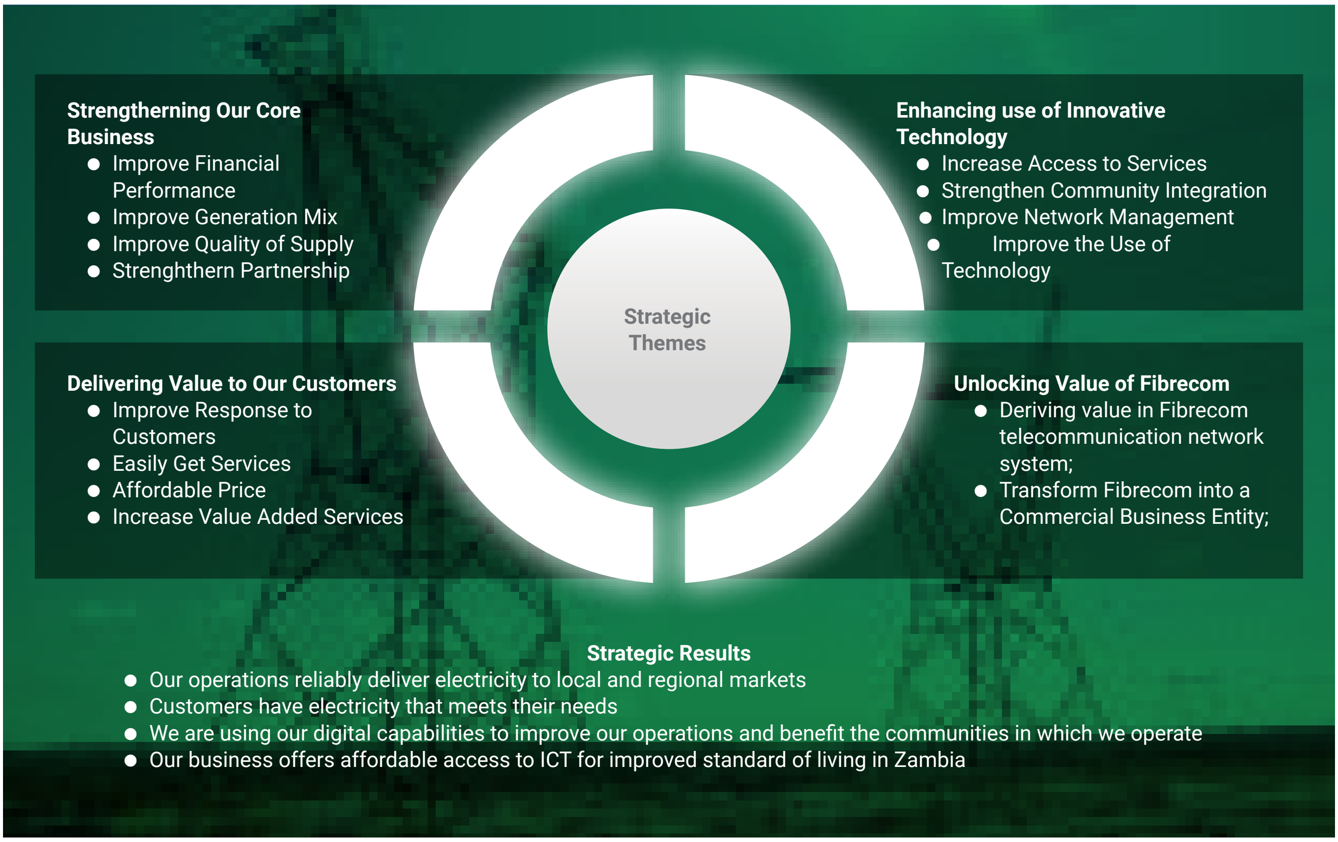
- Motor Vehicle Purchase Requisition Consolidation aimed increasing bulky purchases of Motor Vehicle spares and other services..
- Implementation of Budget module linking the Oracle Financials and Stores & Procurement Systems as budgeting monitoring tool.
- Establishment of a Bonded warehouse will help to reduce the demurrage charges.
- Establishment of modern stores facilities to reduce on damage goods and theft of materials.
- Future Procurement Improvements
- Implementation of E-Supply Chain System department;
- Electronic-Government Procurement (e-GP) and Web Based Application

Stores Management
The company operates 68 Stores dotted across the country with inventories at an estimated value of K582 million.

The Public Finance Management Act of 2018, provides guidance on disposal of public entity inventories that are damaged or obsolete. During the year there no disposal of obsolete or damaged goods.

Our Strategy

Our strategy is anchored on the four strategic pillars that enable delivery of value to our shareholders, and meet customer's expectation in service delivery.



Strategic Context

Our strategic update in 2019 confirmed that the

Our strategy energy trends identified in 2017 continue to play out in the following;

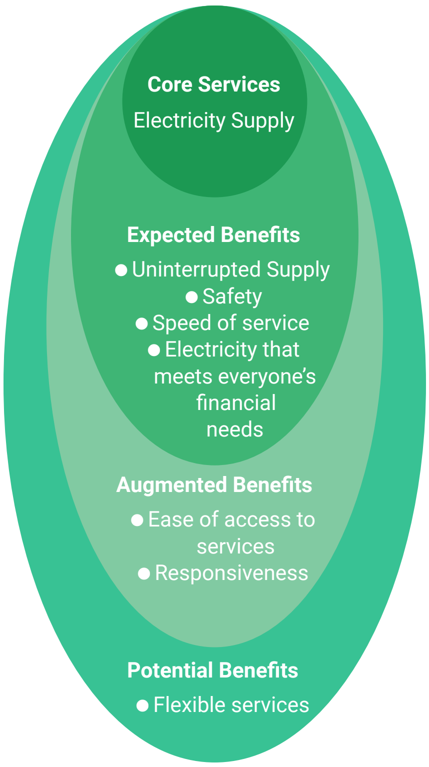
- The medium to long-term generation mix will include renewable energy and other sources. This initiative will improve utilization of installed capacity and management of water resources.
- Local and Regional Demand of power is growing exponentially. To ensure we continue satisfying our customers and improve Return on Investments for shareholders, we are rehabilitating, reinforcing and expanding our transmission and distribution network systems to fit into our Vision.
- Changes in customer needs with the emergence of renewable energy providing alternative to the sources of energy.
- Diversification of energy in renewable energy has become a core area of focus as part of strengthening our core business.

Customer Value Proposition

Our Customer Value Proposition is designed to respond to customer needs despite constraints that may exist in our business model.

The three value factors that underpin our proposition to our customers to give them an exceptional experience include;

- Ease of Access: We make it easy for our customers to be connected to our electricity network.
- Responsiveness: We strive to respond to our customers, take pride in understanding their needs, and go the extra mile in delivering our service.
- Flexibility: We are constantly looking for new ways to accommodate our customers' in order to better their lives.



Key Performance Indicators against Strategic Objectives

We have defined a number of KPs and targets to measure our performance. We continually monitor our performance against these targets and when necessary, revise them to take into account changes in the strategic outlook. The KPIs consist of both financial and non-financial designed to measure performance by the Board, Regulator and Shareholder.

		Target	Actual	Rate of Achievement	Target KPI Achievement
	Key Performance Indicators Financial	2019	2019		
1	Debt/EBIDTA1	6	-0.120	-2%	Not Achived
2	Debt Service Cover Ratio2	1.25	-0.120	-10%	Not Achived
3	EBIBTA3	4,709	(2,347)	-50%	Not Achived
4	Average Selling Tariff/Average IPP tariff4	1	0.55	55%	Not Achived
5	Cash Conversion Rate - Domestic - ZMW5	100%	101%	101%	Achieved
6	Cash Conversion Rate - Mining - US$6	100%	80%	80%	Not Achived
7	Cash Conversion Rate - Exports - US$7	100%	94%	94%	Not Achived
8	Liquidity8	100%	37%	37%	Not Achived
9	Revenue - ZMW9	12,345	10,326	84%	Not Achived
	Non-Financial				
1	SAIDI10	27hrs	132.2 hrs	0%	Not Achived
2	SAIFI11	5 times	11.64 times	0%	Not Achived
3	Energy sold in volume12	13,864	13,882	100%	Achieved
4	Labour Productive13	100	151	100%	Achieved
5	Growth in Customer Base14	66,000	59,552	90%	Not Achived
6	Number of fatal incidences (annual average)15	0	7	0%	Not Achived
7	Customer Complaint Resolution Rate16	90%	96%	96%	Achieved
8	Customer Connection Average Rate (CCAR)17	30	14	0%	Not Achived

1 It's a measure of period it takes to amortise interest bearing Debt. The target is 6 times or below.
2 It's a measure of company's ability to service principle loan repayments and interest as they fall due.
3 It's a measure of a company ability to generate sufficient Earnings to cover Debt servicing and Interest. It's calculated as Earning Before Interest, Tax and Amortisation.
4 It's a measure of selling tariff in relation to the purchase tariff from Independent Power Producers. The result below 1 indicates selling tarriffs are lower than buying tariff from IPPs.
5 The ability to convert the sales into cash generation. It's calculated as cash generated as a percentage of sales.
6 The ability to convert the sales into cash generation. It's calculated as cash generated as a percentage of sales.
7 The ability to convert the sales into cash generation. It's calculated as cash generated as a percentage of sales.
8 It measure ability to meet current liabilities as they fall due. Its calclated as current assets/current liabilities. The target should be atleast 100% and above.
9 The measure of sales in value terms during the year.
10 System average interruption duration index (SAIDI) measures the total amount of time that an average customer experiences service interruption during the measurement period.
11 The average number of interruptions that a customer would experience, and is calculated as where is the failure rate and is the number of customers for location.
12 Measures volume of energy sold in a particular period - GWh
13 This measures how many customers one employee is able to serve in a particular period.
14 The growth in the number of customers connected to the grid
15 This measures number of safety incidences occurred during the year.
16 The average age of resolved faults and complaints to the average age of the total faults and complaints in a particular period
17 The ratio of the average age of standard connected jobs in a specified period compared to the average age of pending paid up job

Our Key Risks and Uncertainties

Our Enterprise Risk Management Strategy (ERM) is anchored on our ability to understand those risks that could influence the execution of our corporate strategy and determining the acceptable level of risk appetite that we can tolerate.

- Identifying events or circumstances (operational, Financial, Economic, Health & Safety, etc.) that could impact our ability to achieve strategic objectives (both downside and upside risks),
- Undertaking an assessment of the likelihood and magnitude of impact that the risk could have on the organization,
- Determining an appropriate response strategy for each risk group, and develop a risk monitoring mechanism to track the risks.

Governance and Oversight of Risk Management

Strategic

The Board set the risk tone for the organisation, they are responsible and accountable for effective development and implementation of ZESCO Risk Management Strategy. The board governance structure, independence and skills ensure effective monitoring and review of the ZESCO's risk Strategy.

Corporate Management (MD and Directors)

The Board delegates the responsibility of the risk management process to corporate management. The Managing Director has the delegated responsibility of managing business and strategic risk allocated to him in accordance with acceptable risk Appetite.

Day-to-Day Risk Management

Corporate Management delegates risk management responsibilities to strategic business units' heads who are tasked with administration of risk under their respective units. Business unit heads are responsible for the day-to-day organisation risk management through policy implementation and supervision.

Risk management process

"The Enterprise Risk Framework is designed to enable us to identify, evaluate and mitigate our risks appropriately. Below is our five steps process:"

1. **Risk Identification**
   - Identify significant risks that have a potential to derail our overall strategy and/or key strategic objectives of the company.
2. **Risk Assessment & Analysis**
   - Assess inherent impact and likelihood using risk assessment matrix.
   - Identify risk type and determine target risk rating.
   - Identify mitigating activities, key risk indicators and assess current risk exposure.
3. **Design & Implement Controls**
   - Design and implement controls to mitigate the potential impact and likelihood of risks
4. **Risk Management & Monitoring**
   - Management of risks and controls to deliver target risk level.
   - Monitor through inspection, performance reviews and regular reporting.
   - Identify and implement remedial action.
5. **Identification and Implementation of Specific Risk Response Strategy**
   - Report, Evaluate and Improve remedial actions
   - Report consolidated risk, assurance and control position to Audit committee.
   - Evaluate priority risks within risk profile to identify any corrective actions.
6. **Drive continuous improvements through reviewing the Risk Universe and risk appetite.**

Our Key Risks

The following information provides an assessment of the risks currently considered as primary risks of the Company

Risk description	Risk ▲	Potential Risk Impact	Risk mitigation
1. Climate Change risks Changes in regional climate conditions resulting in adverse weather patterns such as floods, droughts and extreme high temperatures, are heavily impacting both the local and regional business landscape	▼	The Corporation's electricity generation business is predominantly hydro. Climate change phenomena such as droughts, excessive temperatures, and flash floods can affect our ability to collect enough water and overall dam operations at the various storage reservoirs which impacts the generation of electricity. Over 95% of ZESCO's electricity generation capacity is in the southern part of the country, which is susceptible to the effects of climate change.	ZESCO has implemented the cascaded generation strategy to mitigate the effects of climate change through the optimisation of water usage on the same river basin. The strategy entails the development of generating plants in different locations across the same river basin to increase generation capacity through optimisation of water usage. The Kafue river basin initially had 990MW, without altering the watercourse ZESCO has increased the installed capacity by 88% on the Kafue River waterbody. The corporation initiated several memorandum of understanding to undertake studies for the development of different renewable energy sources. The diversification of the generation mix is key to the sustainability of ZESCO's business model.
2. Cyber, Security and System Resilience Risk of IT system internal misuse, cyber-attack, security of IT systems resilience and business continuity.	–	ZESCO continues to invest in business-integrated systems, which manages different aspects of the business, such as • Customer Management System – Managing data of over a million customers. • Add some more systems core/ Impact • Asset Management and Services Systems – Operations and Management of ZESCO core assets. • Some potential risks that can be associated with this risk type are; • Information Breaches (hackers and viruses), • Failure of the system to cope with peak customer demand and; • Disaster disrupts the IT infrastructure.	Information System (IS) security underpins our ability to achieve various strategic objectives. Management has continued to invest in cybersecurity systems, to ensure the organisation's capability to intelligently monitor and react to cyber-attack threats and incidences is enhanced. In 2019, the IT Security Operation Centre (SOC) was launched and staffed. Further, management continues to sustain its IT Infrastructure and Solutions through its consistent sustainability and reliability program that ensures the whole IT infrastructure is resilient and able to copes with customer and business peak demand. ZESCO's business continuity strategy concerning IT Infrastructure is anchored by the comprehensive disaster recovery plans that undergo annual management reviews and comply with the best practices of ISO 27001 standards.
3. Safety, Health, Environment and Quality (SHEQ) Risk of failure to protect the health and safety of customers, employees, and third parties or to respond appropriately to protect our environment in which we operate..	–	Our operations have the potential to result in personal or environmental harm. Significant SHEQ events could have regulatory, financial, and reputational repercussions that would adversely affect our business.	Management has embraced the SHEQ Management Systems as part of its corporate culture through its policies, standards, and procedures that ensure that employees, customers, and other third parties are protected. ZESCO is an ISO Certified organisation in the following Management systems 45001, 9001, and 14001. Management conducted XXX staff safety workshops and continued engaging customers through media as a strategy to continue promoting the safety culture among stakeholders. Further, to improve public safety, management started rolling out an innovative aerial bonded conductor that reduces the impact that our operation has on the environment and the overall risk of electrocution. Management has further maintained a one-off Incentive scheme aimed at motivating and rewarding staff who attain system authorization status for technical staff. In 2019, Management disbursed K 0.4 million under the Scheme.
4. Asset Management Risk Risk of failures to effectively undertake prudent group asset management function.	–	Failure to effectively manage the asset management function could result in significant Strategic, Safety, Health, Environmental, Regulatory, and asset underperformance. The consequences of poor asset management could result in unplanned outages, equipment failures, network overload, shortened asset life, loss of revenue and customer goodwill, etc.	ZESCO Board through its Technical Sub Committee reviews quarterly technical reports from operating directorates. The technical reports covers the following but not limited to; operations, maintenance and projects related to core assets.
5. Digital Technology and Operation Technology Risk of reduced availability and reliability, data security, and business benefits optimisation for Operation Technology (OT) systems deployed to aid network operations.	▼	ZESCO's extensive electricity network system places significant reliance on OT infrastructure in managing the organisation's core operations value chain, failure of the OT Systems will result in a huge financial and reputation impact consequentially affecting the company and country.	Corporate management ensures OT Systems integrity by investing in solutions from renowned global industry leaders, who extend their expertise and industry experience to our staff. On annual basis, the external experts from the original equipment manufacturer (OEM) undertake system audits, security reviews, and patching to ascertain and sustain operational integrity of our OT systems.

Risk description	Risk ▲	Potential Risk Impact	Risk mitigation
6. Political and Legal Risk These risks arise from changes happening in the political and legal environment of the business. These can arise through change of law and government policies.	▲	This year government assented into law the Energy Regulation and Electricity Act of 2019. The Electricity Acts of 2019 has introduced open access reforms in the electricity market that will increase industry competitiveness, and the Energy Regulation Act changes the Regulator from the Board to an Authority and expand on its power to effectively manage the energy industry. Further, the Ministry of Energy (MoE) launched a new Energy Policy which has a ten (10) years horizon. There is a risk that changes in the Legal and Policy framework have the potential to impact ZESCO once implemented.	ZESCO's strategic focus of being an electricity hub by 2025 will mitigate against risks arising from industry structural changes such as open access. The Corporate management has set up committees to develop pricing models that intends to support the pricing strategy for our products in an open-access arrangement.
7. Stakeholder Management Risk The Risk of Failure to effectively manage and sustain a healthy relationship with all our stakeholders can impede the ability to successfully achieve business goals and objectives.	▼	Effective stakeholder management is critical for us to sustain various key strategic objectives such as • Capital Project Implementation – Government, Regulator, Communities (PAP), customers and employees. • Implementation of Industry Cost of Service Study -Migration of customers to Cost Reflective Tariff – Stakeholder being Communities, Government Regulators, Customers and Legislators • Health and Safety - Stakeholder being Community, Employees, Government	In 2019, corporate management undertook many stakeholder and customer engagements based on wide range of activities, such Customer interactions, Safety and Product awareness, sanitisation, Projects updates. The following are some of activities undertaken; Townhall Meeting – Conducted an engagement with Kabwe City civic leadership to share an update on projects ZESCO is undertaken in the Kabwe city as well as nationally to improve the access to electricity and quality of supply. Media interaction - Engagement with customers through various media handles on issues affecting customers and ZESCO, such as power outages, project updates, vandalism, etc. In December, the Managing Director and the Board had a media interaction to inform the media houses on the power deficit situation the country is facing. Community Interaction – In 2019 management undertook community anti vandalism and safety sensitisation in North Western and Copperbelt provinces. The interaction was aimed at raising community awareness on issue of vandalism and product safety.
8. Regulatory Risk The tariffs charged to both domestic and wholesale customers are subject to regulatory approval.	–	Currently, the electricity tariffs in the Zambian Electricity Industry are not cost-reflective, which implies that there is a disparity between the cost of power purchases from IPPs and the selling tariff to end-users. There is a risk that failure to grant approval to ZESCO annual tariff applications will derail the plan to migrate the tariff to cost-reflective and further constrain ZESCO's cash flow position.	The Energy Regulation Board is currently conducting the Electricity industry cost of service study, the study is expected to provide a migration path towards attaining cost-reflective tariffs and establish baseline tariffs in the Zambian ESI. Corporate management continues to engage its stakeholder across all customer groups to inform them of the impact of non-cost-reflective tariffs, and additionally CAPEX requirements to improve the security of supply. These interactions give ZESCO a platform to explain the objective of the tariff adjustment proposal. Furthermore, corporate management is actively engaging IPPs in a discussion to review the bulk tariffs under Power Purchase Agreement (PPAs). This is hoped to mitigate the cost disparity in the Industry between power producers and consumers. ZESCO going forward will only enter deals with IPPs if they are cost reflective.
9. Strategy Delivery Risk that our strategy is not appropriate to respond to external issues and/or the risk that the strategy is not deliverable due to changes in the external environment	▲	Potential Risk Impact. Successful delivery of our strategy requires serving customers, managing and building infrastructure in a way that satisfies our customers and stakeholders' changing needs in the dynamic business environment. Therefore failure to invest in appropriate responses to changing markets and competitive business environments, and/or build the necessary infrastructures that enhance our capabilities to compete, have the potential to adversely impact our cash flow growth, survival and value goals.	The Board sets and reviews ZESCO's strategy, which determines the company's strategic objective and values anchoring the business. Regular reviews are conducted to consider changes in the competitive business environment that may affect ZESCO's ability to achieve its strategy. Corporate management regularly reviews ZESCO's capabilities and competencies required to deliver the strategy and provides leadership to resolve any factors that could affect the strategy delivery. The investment and finance committee of the board ensures we have a clear financial strategy to finance our strategic initiatives and provides oversight on corporate management's external resource mobilisation initiatives.

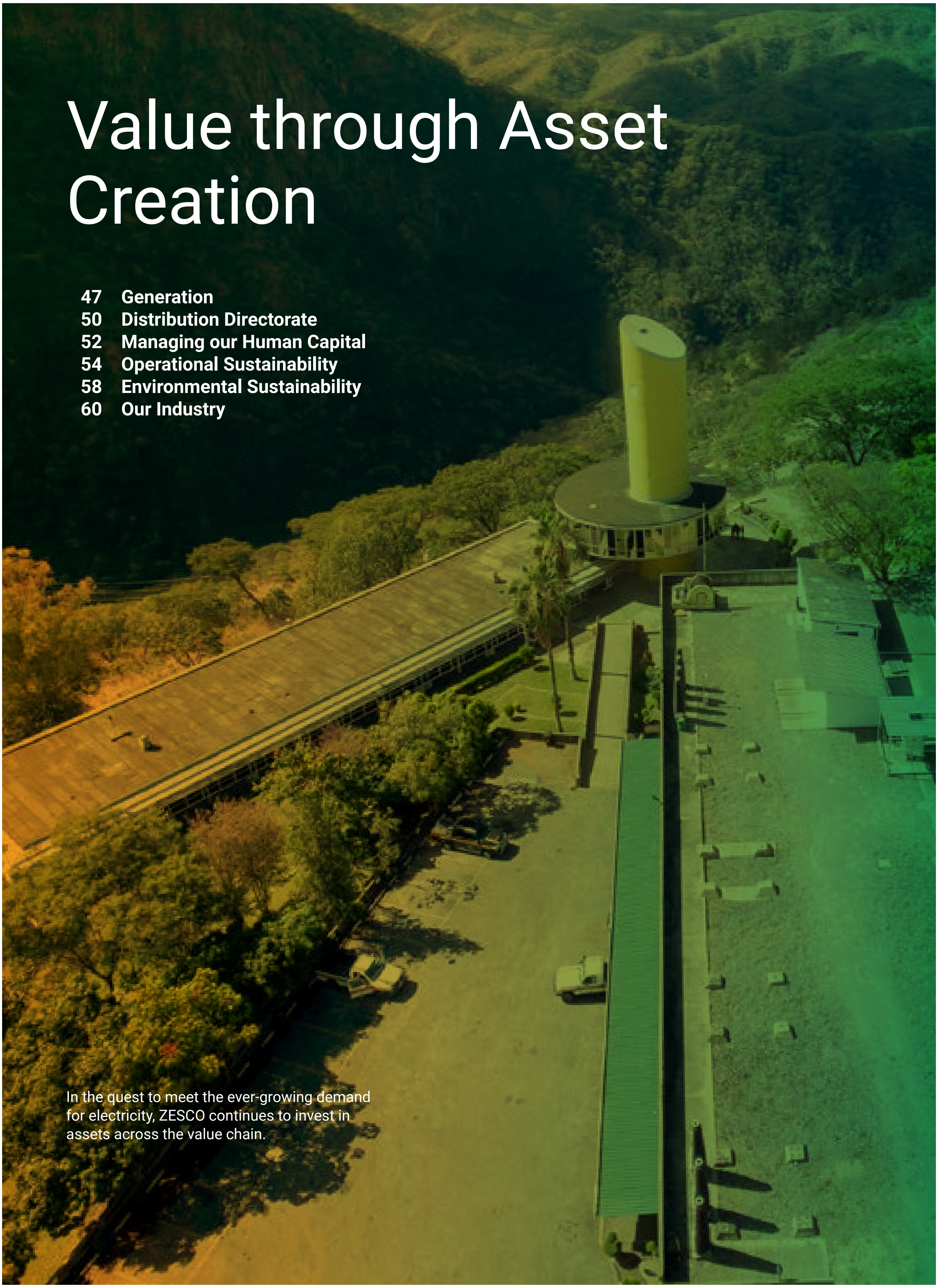
Risk description	Risk ▲	Potential Risk Impact	Risk mitigation
10. Financial Processing and Reporting Risk of errors or losses arising from the processing and reporting of financial transactions for both internal and external.	–	The global accounting landscape is evolving rapidly, partly due to the coming into effect of new International Financial Reporting Standards (IFRS). Effective January 2018, there is a requirement for all companies preparing the financials based on IFRS to adopt IFRS 9 and 15 fully. During the current transformation, there is a risk that we may fail to comply fully with relevant tax and regulatory requirements.	Corporate management continues to build internal capacity by making IFRS training available to employees operating in this environment. This approach ensured that management effectively mitigate the risk that will arise from the implementation of the new financial reporting standards.
11. Legal, Regulatory and Ethical Standards Compliance Risk of failure to comply with laws and regulations, and to behave ethically in line with our integrity Code, resulting in adverse impact on our social and relationship capital	–	Any real or perceived failure to follow our integrity code or failure to comply with legal or regulatory obligations (such as tax and financial reporting obligation) would undermine our customer and stakeholder trust in ZESCO as a business Non-compliance could lead to financial penalties (e.g., Tax penalties,) reputational damage (e.g., been tainted a corrupt organization), and/or legal (company been sued) and/or regulatory action (cancellation of the operating license by regulator).	As one of the measures to manage the reputation risk, the Board and Corporate Management have operationalized the Integrity Committee program as a corruption prevention strategy established in line with Section 6(1) (a) (iv) of the Anti-Corruption Act No. 3 of 2012. Corporate management has developed and implemented policies and interventions that outline the corporate culture and attitude towards malpractices such as fraud and corruption e.g. Whistleblower policy to provide a consistent corporate-wide approach to report any unethical behavior without fear of victimisation.
12. Foreign Exchange Risk Financial risk that exists when a financial transaction is denominated in a currency other than the domestic currency of the company.	▲	ZESCO has substantial transactions and obligations in foreign denominated currency whereas almost fifty percent of its energy sales are in local currency. The Kwacha to dollar foreign currency movements has potential to affect the Cashflow, attainment of electricity tariff cost reflectiveness, and key financing covenants and condition precedents. The 2019 tariff award which will be effective on 1 January 2020 lifted the average selling tariff to US Seven Cents per kilo Watt-hour (USc 7/kWh) from three and a half Cent per kilo Watt-hour (USc3.5/kWh). The adverse Kwacha Dollar FX movements can lead to dilution of this positive tariff adjustment.	ZESCO has continued growing its portfolio of PPA clientele, which is denominated in US Dollars, as a hedge against FX Movements. In 2019 we managed to bring on board Simona Mpande Limestone a cement manufacturing company, Mabiza Resources and Zambia Sugar Plc. Management also successfully negotiated new tariffs with Lumwana Mine, Nampower, Botswana Power and ZESA etc.

▲ Risk increase
▼ Risk decrease
– Risk Neutral

Risk Heat Map

Our top risks include;

- Risks and Opportunities that have a direct potential impact on financial risk which relate to revenue, earnings and capital;
- Risks that can impact our achievement of longer-term strategic objectives;
- Risks that can impact our near-to-medium term business plans and our reputation;



Value through Asset Creation

In the quest to meet the ever-growing demand for electricity, ZESCO continues to invest in assets across the value chain.

Generation

ZESCO's generation is predominantly hydro with an installed capacity of 2, 151 MW. The following are some of the new additions during the year.

Kafue Gorge Lower Project (KGL)

This is a 750 MW project located in the southern part of the country on the Kafue river basin, downstream of Kafue Gorge Power Station.

The objective of the project is to increase installed capacity and optimise the water usage on the Kafue river basin by cascading the power plants. When the plant reaches commercial operation the installed capacity on this waterbody will increase by 68%.

The project completion progress at the end of 2019 was about 80%.

Lusiwasi Upper Hydro power Project

This is a 15 MW project located in the northern part of the country on the Lusiwasi river basin.

The objective of the project is to increase installed capacity and improve the quality of supply in the Northern circuit. The project is also aimed at achieving geographical diversification as most of ZESCO Plants are in the Southern part of the Country.

The project completion progress at the end of 2019 was about 85%.

Lusiwasi Lower Hydro power Project

This is an 86 MW project located in the northern part of the country on the Lusiwasi river basin.

The objective of the project is to increase installed capacity and improve the quality of supply in the Northern circuit. Besides geographical diversification objective, the project also hopes to optimise the water usage by cascading plants on the same waterbody. Initially, the Lusiwasi river basin only had 12MW installed capacity which will increase by over 88MW.

Chishimba Falls Power Station Project

This is a 14.8 MW project located in the northern part of the country on the Luombe river basin. The project will rehabilitate and uprate the existing plant from 10MW to 14.8MW.

The objective of the project is to increase installed capacity and improve the quality of supply in the Northern circuit. The project is also aimed at achieving geographical diversification as most of ZESCO Plants are in the Southern part of the Country. The procurement of an EPC contractor is currently underway.

Kalungwishi River Hydro power Scheme

This is a 163 MW project located in the northern part of the country on the Kalungwishi river basin. The project development scheme will have 2 Sites,

- Kabweulume site with an installed capacity of 62 MW comprising of two generating units rated at 31 MW each.
- Kundabwika site with an installed capacity of 101 MW comprising of three generating units rated at 33.6MW each.

The objective of the project is to increase installed capacity and improve the quality of supply in the Northern circuit. The project is also aimed at achieving geographical diversification as most of the ZESCO plants are in the Southern part of the Country.

Transmission

The Transmission system comprises of infrastructure used to evacuate power across Zambia, which covers over 10,500 km of High Voltage overhead lines in the voltage class 66-330 kV. The System has over 147 substations with a combined transformation capacity of about 8,200 MVA. ZESCO's transmission system is interconnected with other utilities Systems in the Southern African Power Pool (SAPP).

During the year under review ZESCO executed projects which are at different stages of Implementation as follow:

1. System Reinforcement Projects– to improve the power transfer capacity and system operational efficiency.

2. Grid Expansion Projects – to expand the system to connect businesses and parts of the country that are not on the electricity Grid.

The following are some of the projects that are at different stages of Implementation:

Kalumbila Trident Mine Supply Project

The project scope is to construct a 330kV double circuit transmission line and associated substations from Lusaka to Kalumbila. The final commissioning is pending the installation of the line Reactor on the second Mumbwa – Kalumbila 330kV Line. The project to introduce the reactor on the second Mumbwa – Kalumbila 330kV Line has commenced and further, the project will also include a 18kM 33kV distribution line from Nambala Substation to Mumbwa Town Substation.

The objective of the project is to supply Kalumbila's Trident Mine in the North-Western part of Zambia. The Investment will also provide system stability and resilience to the new mines in the area and also improve supply in Mumbwa district.

The overall project completion progress is over 98%,

System-Wide Reactive Power Compensation Project

This project is aimed at carrying out system studies to determine the number and types of reactive power compensation needed in the system.

ZESCO has finalised the power system studies to determine the amount and type of reactive power compensation needed in the system. The project has also completed the preparation of specifications for various equipment and tender documents. ZESCO signed an addendum to the initial contract to include studies for the dimensioning of dynamic reactive power compensation devices for the Zambia Tanzania Interconnection project.

The Project is pending going to tender as at the close of this financial year.

Kasama – Nakonde and Zambia-Tanzania-Interconnection Project (ZTIP)

This project is part of Zambia Tanzania Kenya (ZTK) whose scope included the construction of 387 km of 330 kV line from Kasama to Mporokoso and Kasama to Nakonde and associated substations to be constructed in Mporokoso and Nakonde. The project will also construct a Zambia – Tanzania Interconnector with a design transfer capacity of 500MVA. As a project spin-off, ZESCO will also develop some sub-transmission lines in Kasama and Mungwi areas.

The objective of the ZTK Interconnector is to facilitate trading in electricity in the region and promote power systems stability by effectively connecting the Southern African Power Pool (SAPP) with the East African Power Pool (EAPP). Once completed this project will enable the Zambian section of the ZTK corridor to transfer at least a 500MW firm power and will secure power supplies to northern Zambia.

The project is currently securing the wayleaves by pay off the Project Affected People and the contractor is undertaking preliminary works such as designs, surveys, soil investigations, and siting of local materials for civil works.

Pensulo-Mansa Transmission Project

The project scope involves the construction of a 300kM 330kV transmission line and associated substations. The transmission line will initiate from the existing Pensulo substation in Serenje district to a newly constructed substation in Mansa. The project will also develop a local sub-transmission network that will be reinforced with a 132kV Network.

Some of the key objectives of the project are (1) to increase the transmission capacity to Luapula Province to support the anticipated large mining and agricultural loads, (2) provide an evacuation path for the Hydro power scheme on the Luapula river basin, and (3) improve the quality of supply in the province.

The project has passed the procurement stage and the contractor for the project has been awarded a contract.

Improvement of power supply to Mpika District.

This project scope involved the development of a new 330/132-66 kV substation in Mpika and also rehabilitation of the existing Mpika 66/11 kV substation.

The key objectives are (1) to improve and secure electricity supply to Mpika district, (2) to stabilize the long 330 kV Pensulo – Kasama transmission line by introducing a node at Mpika, and (3) the new substation will be used as an integration point for generation projects in the area

The project completion status is 100% completion in the year under review

Evacuation of Power from Ndola Energy Phase II

This project involves the construction of an evacuation path for Ndola Energy's 57MW Phase II power plant by re-configuring about 1.3kM of the existing Mushili – Bwana Mkubwa 66kV Transmission line into and out of the Ndola energy plant. The project involved replacing terminal equipment, construction of a control building, and introduce station automation (SCADA) at Bwana Mkubwa

Substation.

The project objective is to provide a permanent evacuation for phase II and also improve operational efficiency.

Second Kabwe-Pensulo 330kV Transmission Line

This project involves the construction of a 300kM 330kV Transmission line from Kabwe Stepdown Substation to Pensulo Substation and associated Substation works,

The project objective of the Second Kabwe Stepdown – Pensulo Transmission line is to reinforce and improve the security of supply to Northern, Eastern, Muchinga, and Luapula provinces.

As of the end of the year, tower spotting and bush clearing was 100% complete, and over 62% of the foundations were completed and various materials for the project were under manufacturing process

Msoro and Kabwe step down reactor

This project involves introducing reactive power compensation equipment (i.e. Reactors) at Msoro Substation and Kabwe Stepdown Substation on a 330kV network.

The projective objective is to provide the system operator some means of Voltage control at the two points of the network.

The project has passed procurement and an EPC contractor has been awarded a contract

Connection of Luangwa to the Grid

This project involves connecting Rufunsa and Luangwa district to the national electricity Grid. Rufunsa district has no access to electricity whereas Luangwa district is supplied by Diesel Generating Plant which is expensive, unreliable, and environmentally unfriendly. The project will construct a 210km 132kV Monopole transmission line from Leopard Hills Substation to Luangwa via Runfusa district and Chitope area and two (2) by 132/33kV substations. Additionally, the project will develop a distribution network involving over 130km of 33kV Overhead lines, LV distribution network, and other support infrastructure.

The main project objective is to increase access to electricity by connecting Runfunsa and surrounding areas to the national electricity Grid and decommission a 5MW Diesel Generating Plant in Luangwa district.

Various sub- components of the project were commissioned in the year under review as follows:

- At Leopards Hill Substation, 132kV Switchyard Extension Works are completed.
- Mpanshya 132/33kV Substation with a first 16MVA Transformer in Runfusa district was commissioned.
- The First leg of the 132kV Leopard Hill – Mpanshya Transmission Line was commissioned.

The overall project progress completion is at about 90% for the transmission line and about 80% for the Substations.

Reinforcement of supply to Sanje (Mumbwa ZAF) 33/11KV Substation.

The project scope Involves uprating Sanje from 33/11kV to 132–88/33/11kV Substation and Establishing a 132 – 88kV bay at Nampundwe Substation. The scope will also include development of a 33kV distribution network to ensure continuity of supply to existing customers.

The main objective is to increase the transmission line transfer capacity by operating the Nampundwe – Sanje Line at its design voltage of 88kV and subsequently increasing the overall access to electricity to Mumbwa and surrounding areas.

Kafue Gorge Lower (KGL) Power Evacuation Project.

This project involves the construction of three 330kV Transmission line and associated substation works as follows;

- 48kM 330kV Kafue West – Lusaka West Transmission Line
- 50kM 330kV Kafue Gorge Lower – Lusaka South Multi-Facility Economic Zone (LSMEZ).
- 106kM 330kV Kafue Gorge Lower – Lusaka West
- Substation works at Kafue Gorge Lower, Lusaka West, LSMFEZ, and Kafue West Substation.

The main objective is to provide a power evacuation passage for the 750MW KGL power and create a Grid Integration point for the KGL Scheme.

The project procurement process has been finalised, wayleave acquisition and compensation of Project Affected Peoples is 100% complete. During the year under review, the contractor is undertaking tower civil works.

Connection of Lundazi and Chama to the National Electricity Grid

The main scope of the project is to construct substations and 132kV (325kM) Transmission Line from Chipata West Substation to Chama via Mwasemphangwe, Lundazi, and Egichickeni. The project will also develop a distribution network involving a 185kM of distribution lines with transformation points in areas such as; schools, rural health centres, and community centres.

The main objective of this project to connect Lundazi and Chama to the National Grid, increase access to electricity, and improve the quality of supply. Currently, Lundazi and Chama are supplied by ESCOM Malawi and also supplemented by Diesel Generating Planting. The two sources are unstable resulting in prolonged interruption of supply.

The completion progress status for the 325kM Transmission line is over 90% and the associated substation works are below 10%.

Lusaka South Multi Facility Economic Zone (LSMFEZ) 330kV Transmission Project.

The project involves the construction of (1) 330/132/33kV substation, (2) 330kV Transmission Lines from Leopard Hills Substation to LMSFEZ Substation, and (3) Kafue West Substation to LSMFEZ Substation.

The main objective of the project is to provide reliable power to adequately meet the demand for Lusaka South Multi-Facility Economic Zone (LSMFEZ). Further the project will provide a bulk supply point to the Lusaka 132kV sub-transmission ring project (LTDRP) and the Substation will be one of the evacuation points for 750MW Kafue Gorge Lower and two solar PV plants for Bangweulu and Ngonye Power Company.

One of the project's major components a 150MVA transformer and the Transmission Lines were commissioned during the year under review.

Construction of the Bulk Substation and Transmission Line at Kenneth Kaunda International Airport (KKIA).

This project involves the construction of a 63MVA Greenfield substation at KKIA and related substations works at Chongwe and Avondale Substation. Additionally, construct a 7.5kM 132kV double circuit transmission line to the KKIA Substation.

The main objective of the project is to provide a stable and reliable power supply to the new international airport terminal at the Kenneth Kaunda International Airport.

Distribution

The distribution system comprises infrastructure used to support the utilisation of electricity by the various end-user in ZESCO's domestic customer portfolio comprising of retail customers.

Our drive to increase access to electricity was reaffirmed when we achieved a one million customer mark in 2019. Distribution system asset creation strategy segments our projects into two categories i.e.

1. Distribution System reinforcement projects - to improve the power transfer capacity and system operational efficiency.

2. Distribution System expansion projects - to connect businesses and parts of the country that are not on the national electricity Grid.

Lusaka Transmission & Distribution Rehabilitation Project (LTDRP)

The LTDRP involves three main components as follows;

1. Rehabilitation of Lusaka Transmission System – This scope involves (1) upgrading 88kV transmission corridors to 132kV, (2) rehabilitate the existing 132kV transmission corridors, (3) construct new 132kV Transmission corridors, (4) establish Greenfield Substation and (5) rehabilitate existing Substations.

2. Rehabilitation of Lusaka Distribution System – This scope involves rehabilitation of existing and construction of Greenfield 11 – 33kV distribution networks and substations in Lusaka City.

3. Last Mile - The project involves the integration of the outcome of the LTDRP Project into the existing Lusaka Distribution Network, this will involve reinforcement of the 11kV Network.

The main project objectives are;

1. To increase transmission transfer capacity, and improve network reliability and efficiency in Lusaka.

2. To rehabilitate and reinforce 11 and 33kV Lusaka distribution network and expand existing transformation capacity by building new substations or upgrading the existing substations.

3. To increase access to electricity and efficiency of the network.

Progress on the Contracts in the Execution stage

During the year under review, the following were the completion status of the different segment;

Substations
The following are substation completion progress report

- 98.5% Completion status at Waterworks Substation
- 78% Collective completion status at Industrial, Roma. Leopards Hills and Lusaka West Substations.
- 62.5% Completion status at Chilanga Substation
- 27% Completion status at Avondale Substation.
- 62% Completion status at Chawama Substation

Transmission Lines.
The following is the project status for 132kV Transmission Lines components during the year under review;

- 74% Collective completion status for the following; (1) LSMFEZ – Waterworks, (2) Leopards Hills – Roma, (3) Lusaka West – Industrial, and (4) Industrial - Coventry.
- 77.14% - Completion Status for Roma – Lusaka West
- 69.97% - Completion status for LSMFEZ – Chilanga

Distribution Network

The following is the project status report for the replacement of 33kV Underground Cables;

- 100% - Collective completion status for the following (1) Woodlands – UTH,(2) Waterworks – Birdcage, and (3) Kafue Road - Birdcage

Increased Access to Electricity Services (IAES) Project

The IAES Project involves grid expansion in Northern and North Western under the JICA distribution lines phase II. The project scope includes 652kM of High Voltage and Low Voltage distribution lines and Sixty Six (66) transformation points.

World Bank Funded ESAP, involves increase connection in low-income households and grid network support in the nine (9) provinces.

The objectives of this project are to increase the access to electricity, through expansion of the network in the rural distribution network, and to provide subsidies to low-income households in all the provinces to increase new electricity connections.

During the year under review over 17,500 have applied for the new connection under the ESAP with about 77% connection rate. The consultant for JICA distribution line phase II is executing the following task; (1) carrying out surveys of existing 11kV feeders, (2) development of proposed designs for new 11kV feeders, and (3) Undertaking Socio-Economic Baseline Surveys.

Government Assurance Projects

These are distribution projects executed by ZESCO on behalf of the Government of the Republic of Zambia. The projects are mainly undertaken in rural areas to electrify School, Rural Health Centres, Community Centre, Chiefdoms, and other rural development projects that may require electricity

During the period under review, 40 projects were undertaken across 5 provinces

Corporate Projects

Fleet Management
To sustain and support our operational capability the Fleet Management Unit added 31 new motor vehicles during the period under review which were distributed across the value chain.

Civil, Building, and Infrastructure Project
ZESCO during the year under review has undertaken Building and Infrastructure development projects which are internally managed by the Civil Engineering division. Below are some of the projects which are completed or near completion for 2019;

- Standardized new customer service centers and offices in Siavonga, Chibombo, Katete, Chongwe, and Chilubi districts.

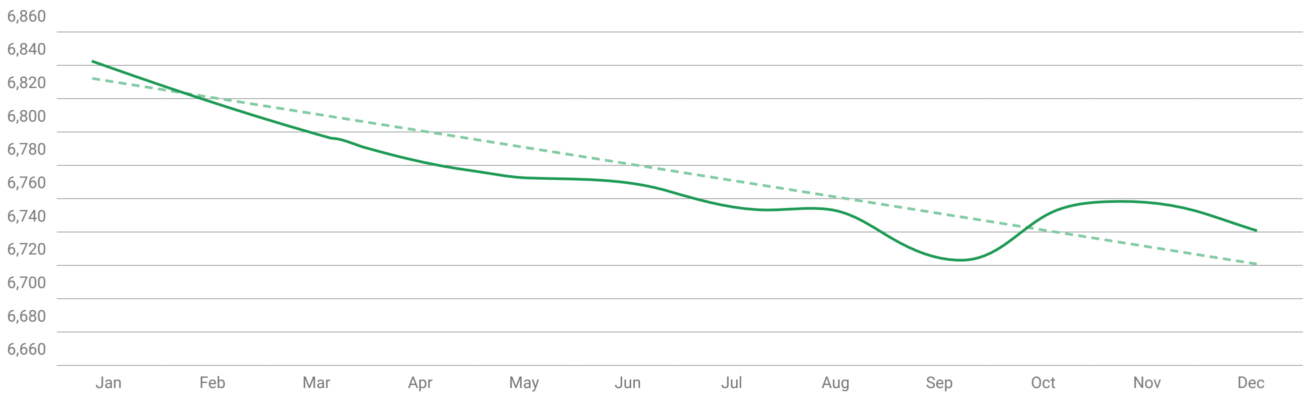
The objective of the projects is to provide enhanced customer experience, by providing the customers a conducive and convenient environment when accessing our services.

Managing our Human Capital

Our regard for the men and women who are at the core of the success of our strategy cannot be overemphasized. The corporation continues to place a premium on staff development and occupational welfare with a view to realizing ultimate performance.

The employee strength dropped to 6,740 at the close of 2019 compared to 6,988 the previous year representing a 4% reduction as significant numbers of staff left due to retirement, separation and non-renewal of contracts.

Staff numbers 2019



The steady decline of staffing levels was as a result of an increase in staff exits through various modes such as retirements, redundancies and dismissals. Total staff exits of 315 exceeded total recruitment of 119 leading to a net reduction in the staff compliment for 2019 .

During the year 3,145 employees benefited from staff trainings compared to 5.054 the previous year with a total of K15.6million spent, representing a reduction of 15% from 2018. This was mainly on account of cost-cutting measures implemented by corporate management. The proportion of unskilled staff recorded a drop of a percentage point.

Human Capital Outline

The make-up of staff continues to provide promise for the future as the majority remain in the energetic age and highly skilled bracket. Further the corporation's training development policy continues to support staff development.

Age Range	Male	Female	Total	%
19-24	25	7	32	0.5
25-35	1,392	575	1,967	29
36-45	2,377	761	3,138	47
46-55	1,248	219	1,458	22
Above 56	123	22	145	2
Total	5,165	1,575	6,740	100

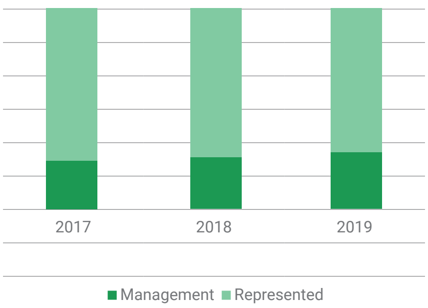
Category	2017		2018		2019	
	No	%	No	%	No	%
Executive Management	9	0.13%	9	0.13%	9	0.13%
Senior Management	365	5%	379	6%	356	5%
Middle Management	1,390	21%	1,496	22%	1,521	23%
Supervisory Staff	816	12%	693	10%	739	11%
Skilled/Junior Supervisory Staff	1,825	27%	1,430	21%	1,539	23%
Semi-Skilled Staff	1,704	25%	2,024	29%	1,861	28%
Non-Skilled Staff	663	10%	857	12%	715	11%
Total	6,772		6,888		6,740	

The proportion of females in the workforce also improved during the year closing at 23.4% of compared to the previous year's 23.2%. The annual ratio for the past few years is detailed below.

Year	Male	Female
2015	77.6	22.4
2016	77.2	22.8
2017	76.8	23.2
2018	76.8	23.2
2019	76.6	23.4

ZESCO has deliberate set of policies and practices that seek to increase the representation of women in areas in which they have been previously underrepresented such as Engineering. This as it strives to be an equal opportunity employer as prescribed by the Equal Employment Opportunity Commission (EEOC), whose main purpose is to eliminate employment discrimination based on factors such as sex or religion. At the end of the year, more than 525 women held roles previously dominated by their male counterparts such as Engineers, Technologists and Technicians.

Staff Distribution Level



A total of 3,145 employees benefited from the training interventions this year.

- 283 employees on long term training, these included sponsored, paid and unpaid studies.
- 384 employees attended short term training aimed at capacity building,
- 804 attended conferences/workshops/ awareness
- 1,541 employees attended in – House System Based training, while
- 133 staff were granted Permission to Study.

Graduate Assessments

The corporation offered support to 322 students for industrial attachments running from various institutions of learning and 19 requests to conduct academic research. Industrial attachment extends an opportunity for students to gain required work experience prior to any form of employment while research is for students to carry out workplace-based research that allows them to obtain their qualification. Through such activities ZESCO contributes to the development of skilled and experienced staff to the national workforce. These students provide a pool from which employers, including ZESCO can recruit from.

The Graduate Assessment Program (GAP) has continued and during the year, a total of 36 candidates underwent the Graduate Assessment Program (GAP),an increase from the twenty two assessed in 2018, out of which 28 passed and 8 were recommended for retest. GAP is a bridging program that allows graduates to be inducted into ZESCO while also applying their theory within the Industry. In this way, the corporation develops a workforce that can apply theory in practical ways and delivering value to stakeholders.

ZESCO Training Centre (ZTC)

The Training Centre has continued to be a strategic partner in providing required staff development through generic as well as tailored trainings to both ZESCO and non-ZESCO staff. During the year, a total of 125 students under the ZESCO sponsorship program were trained in long term courses such as Overhead Lines Construction, Cable Jointing and Electrical Fitting. Out of these, 29 students were studying Electrical Fitters Course, 31 were in Cable Jointing class whilst 65 were studying Overhead Lines Construction course. Close to K1.5 million was provided in support to the training center during the period, an increase of 36% compared to the previous year.

Staff Development

To enhance efficiency, ZESCO has continued to invest in support of staff acquisition and enhancement of relevant skills through various means. These include paid study leave, full sponsorship and facilitating short courses to empower staff. K4.9 million was spent in 2019 on training and capacity building compared to K26.6 million in 2018. This was mainly on account of austerity measures introduced by management and a slowdown in activity during to the year.

A total of 82 employees were sponsored to undertake studies in core and non-core fields during the year representing a 49% increase over the previous year.

Occupational Health

Daily attendance at ZESCO medical facilities across the country totaled 25,467 clients with 3,353-man hours lost. Six hundred and sixty-four (664) clients underwent VCT during the Year under review. The total number of clients accessing ARVs from the in-house scheme stands at Eight hundred and twenty-two (822), of which four hundred and fifty-one (451) are Male and Three seventy-one (371) are Female. There were sixteen (16) deaths recorded in the year. The department conducted One hundred and twenty-three (123) pre-employment medicals during the year.

Occupational Health Statistics	2016	2017	2018	2019	(-/+)	%
Daily Attendance	28,744	27,784	25,683	25,467	-216	-0.78
Man hours lost (Sick off)	38,715	33,365	29,575	3,353	-26,222	-78.59
VCT	720	823	874	1,328	454	55.16
ART Membership	762	812	836	822	-14	-1.72
Condom Distribution	284,935	212,829	156,715	291,601	134,886	63.38
Medical Check-ups	130	699	127	1,328	1,201	171.82
Deaths (ART Related)	7	4	4	1	-3	-75.00
Deaths (Non-ART Related)	26	21	16	14	-2	-9.52

The department successfully conducted its annual review and planning meeting at which performance for 2018 was reviewed and plans made for 2019.To ensure quality health care delivery, the department continues to encourage and support continuous professional development programs. A number of staff attended training and were certified in Emergency Management Obstetric and Neonatal Care (EMONC), Helping Babies Breath (HBB) and Helping Mother Survive Bleeding (HMSB).

Other Occupational Health Activities during the year

Other activities conducted by the Occupational Health Department include basic First Aid orientation program for the bush clearing gang leaders whose aim was to orient bush clearing gang leaders and their coordinators on how to use the First Aid box contents. This was in readiness for the impending bush clearing exercise.

The department also conducted Health education sensitization sessions on chronic conditions to bush cutters during the Bush clearing recruitment exercise. Health surveillance and nursing care services were also offered to the bush clearing employees. Work site visits were also conducted in the various bush clearing camps.

- The Department successfully conducted the Free Wellness clinics for all employees which was held in July 2019 at Hilltop Hospital in Kasama and Lusaka Staff clinics respectively. Thirteen (13) Health Service providers and partners participated during the exercise.
- The department conducted the Occupational and community Health awareness campaigns on the Kafue town – Muzuma – Livingstone 220/330KV upgrade Transmission Line project which is ongoing.
- The Occupational and community health awareness campaigns were commenced in Serenje on the PLR Substation (66/11KV) upgrade Transmission line project and are ongoing.
- The Occupational and community health awareness campaigns were commenced on the reticulation network project in Sikoongo District, Western Province. The initial campaigns were held from 15 to 22 December 2019.
- The Occupational and community Health awareness campaigns on the Kafue town – Muzuma – Livingstone 220/330KV upgrade Transmission Line project and the induction of Construction workers and follow ups on the Lundazi - Chama project have been suspended, awaiting resumption of activities.

Imminent Projections

The unit has identified the need to continue sensitizing employees on the management and prevention of Non-Communicable Diseases (NCDs) such as Hypertension, Diabetes and Asthma which most of our employees suffer from.

The equipment for Cervical Cancer Screening needs to be procured soon to facilitate for cervical cancer screening activities among the female staff.

The corporation is cognizant to the changing needs of our customers and the environment. To this end, skills are being sought in areas such as renewable energy like solar energy management, up skilling of core and non-core staff through trainings. We have also continued partnering with both public and private health institutions to devolve the availability of specialized health care to employees.

ZESCO remains focused on achieving its short term and long-term strategy. Part of this success hinges on the skills and well-being of our staff. We are therefore intent on supporting our team to acquire relevant and up to date qualifications, certifications and skills to be employed across the value chain.

Further we have invested a significant amount of resources in the upskilling and staffing of our Occupational Health team, procured modern equipment to protect the health of our staff and continue to promote wellness activities for ZESCO staff. A healthy staff is key to the achievement of our strategic goals.

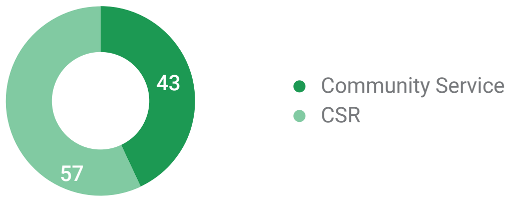
Social and Relationship Investments

To achieve long term sustainable success, it is prudent to maintain a decent Corporate Social Responsibility (CSR) performance whilst attaining profitability for the corporation. We are not only required to focus narrowly on generating profit returns for the shareholder, but also to give back to the community we operate in. We take responsibilities for other stakeholders from a social, environment and economic perspective.

Our CSR policy outlines our approach to CSR, how we should manage it and how we should embed it in our business. The policy provides standards that formulate a framework for the business to help meet the companys mission of "making it easy for people to live a better life." The standards that cover the elements of CSR which are the responsibility of ZESCO include:
a) Business Ethics;[1]
b) Human Rights and Diversity;[2]
c) Community and Socio-Cultural aspects;[3] and
d) Environmental Management.[4]

As a responsible corporate citizen, we continue to support and make contributions to charity, social amenities, education, health, sport and community initiatives as part of our CSR. All types of contributions to the society, major and minor, one off and sustainable or continuous are aimed at bettering society by way of promoting business accountability within the environment and community.

Throughout the year, we spent ZMK 4 million on initiatives and activities in line with our robust CSR.



Traditional ceremonies celebrated by indigenous cultural groups remain a vital part of the country's cultural heritage. Consequently, we give back to these ethnic groups through our CSR support by taking part in traditional ceremonies. This initiative which is a part of our business ethic is aimed at assisting in preserving cultural values that the traditional ceremonies offer to society. These events are an integral part of our culture and seek to reinforce our collective identity as Zambians. Moreover, our organizational soul is reflected in our shared values: love, integrity, commitment and open to ideas. We are dedicated to building and promoting a diverse workforce. This is reflected in the wide range of employees with different characteristics such as religion, race, ethnicity, cultural background, languages, education, abilities, etc. all connected by our core values.

In addition, we recognise communication as an essential aspect of our day-to-day operations. During the period under review, we made strides in facilitating mobile network connectivity to Lusiwasi Power Station by providing power supply to the newly installed MTN repeater station located at Lusiwasi 12MW Power Station. To this effect, communication has become faster and more efficient. This has now made it possible for people living and working in remote areas to stay connected and deliver vital information from one individual to another, as well as stay in touch with family members.

Furthermore, the corporation rehabilitated the community access road at Kasupe in Lusaka West. This contribution has made it easy for the community that lives around this area access secondary roads.

1 ZESCO shall be committed to being a responsible corporate citizen in accordance with its Code of Ethics.
2 ZESCO Limited shall respect all fundamental human rights and be guided in the conduct of its business by Zambian Laws.
3 ZESCO shall be committed to good Corporate Citizenship and to supporting charity, education and community initiatives which are relevant to this business, customers and stakeholders.
4 Protection of the environment in which ZESCO operates shall be part of its values and principles and shall be considered to be sound business practice. Care for the environment shall be one of its key responsibilities and an important part of the way in which business shall be conducted. The water resources that ZESCO depends on for power generation shall require well managed catchment areas; therefore, this CSR shall support afforestation and environmental protection activities.

Operational Sustainability

Operational sustainability looks at how we manage our manufactured capitals with a view to create value in a sustainable way. Manufatured capital in ZESCO's context can be classified as generationn, transmission and distribution systems. Operating sustainably requires that these systems are at there optimal performance for the life of the Assets.

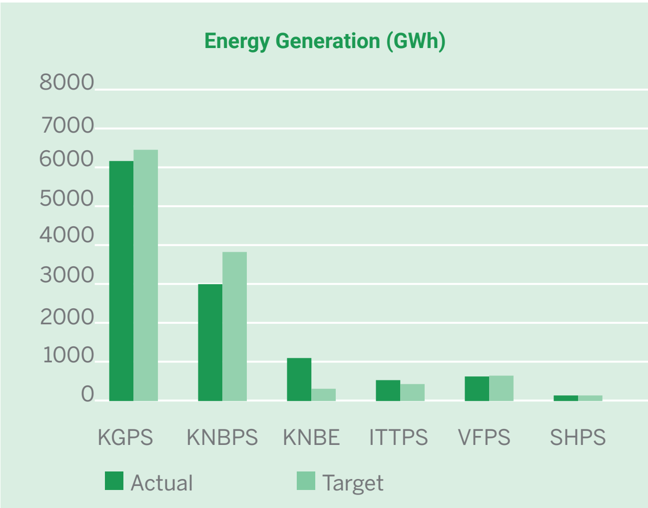
Generation System Performance

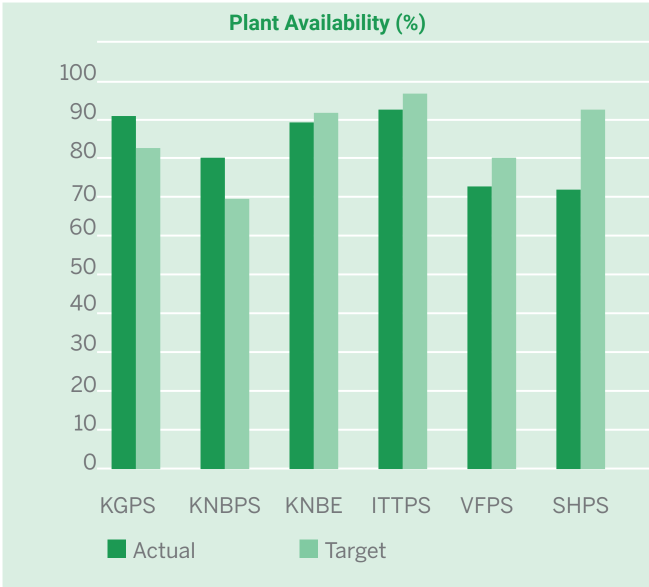
Generation performance for the year at 12,224 GWh was 8% below budget.

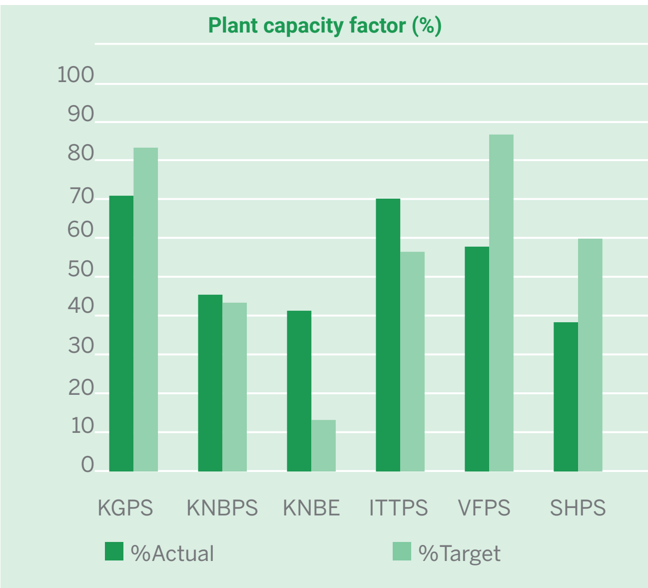
Average Availability of generating plant was at 72% with an average Capacity Factor of 50%. In general, there was sufficient water to generate both firm and secondary power at Kafue Gorge Power Station. At the Kariba North Bank power stations, water utilization exceeded the annual allocation from the Zambezi River Authority closing the year at 110% of the allocation. Normal power generation was conducted at Victoria Falls power station and the Small Hydro power stations during the year.

Maintenance Activities
During the year, All the power stations experienced shutdowns at some point to facilitate for scheduled maintenance. The maintenance works conducted include routine annual and quarterly maintenance. The major works conducted were excitation brush gear maintenance, and canal corrective maintenance at the Small Hydro Power Stations.

Only Kafue Gorge Power Station (KGPS) and Kariba North Bank Power Station (KNBPS) exceeded their targeted plant availability. This mainly due to unplaned shutdowns to carry out corrective maintenance at the other stations.





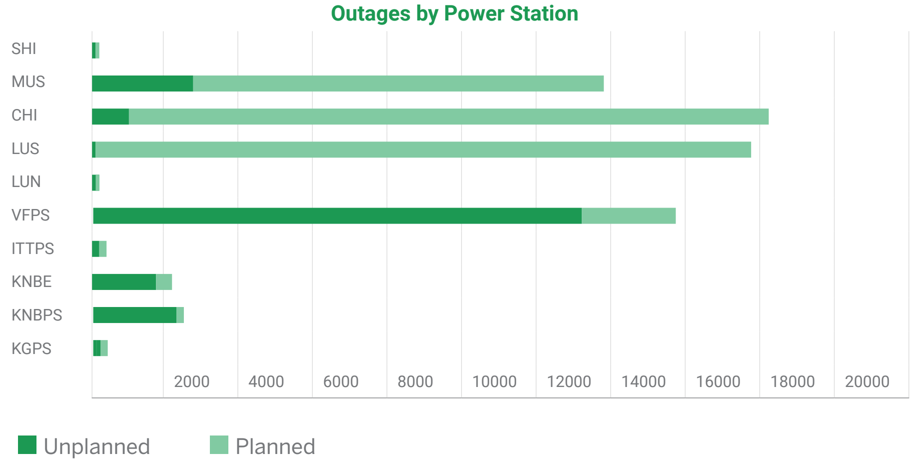


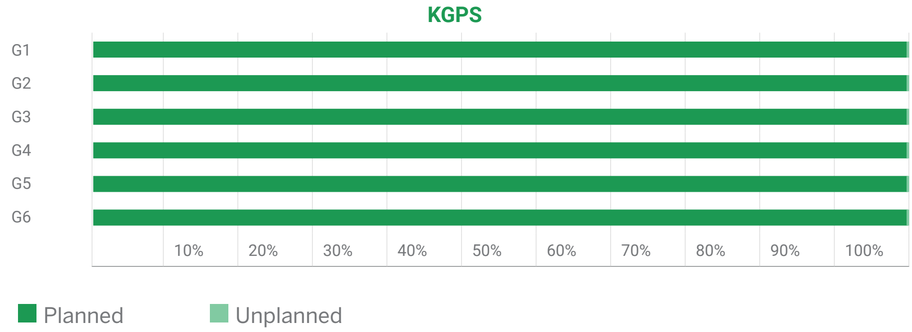
Key

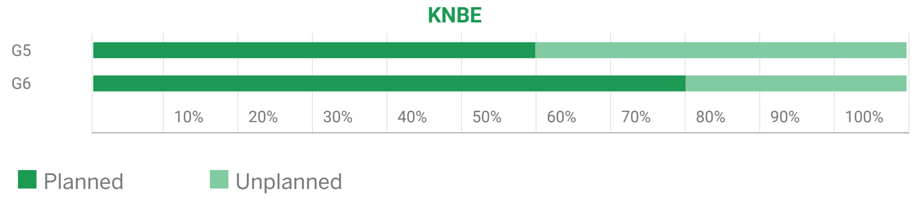
		Small Hydro Power Stations
KGPS	Kafue Gorge Power Station	LUS - Lusiwasi
KNBPS	Kariba North Bank Power Station	CHI - Chishimba
KNBE	Kariba North Bank Extension	MUS - Musonda
ITPC	Itezhi tezhi Power Corporation	LUN - Lunzua
VFPS	Victoria Falls Power Station	SHI - Shiwangandu
SHPS	Small Hydro Power Stations	

Planned Outages by Power Stations

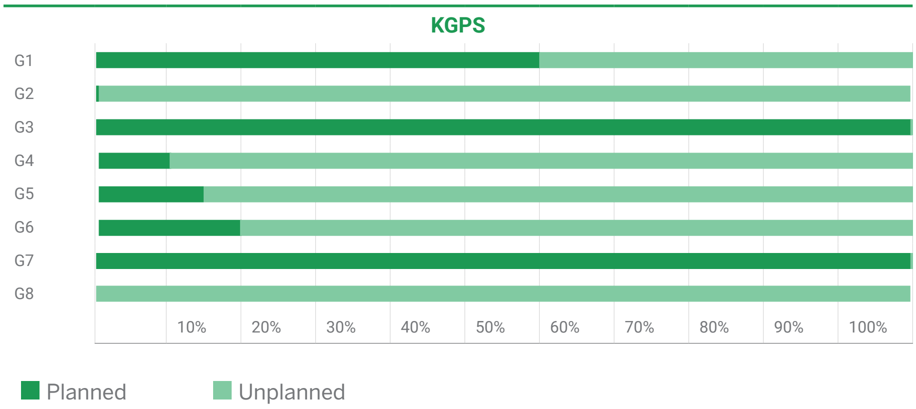
Planned outages are mainly effected to carry out among other things, scheduled maintenance works, replacement and installation of defective parts. Below are the graphical representations of the planned outage hours in the major stations as a percentage of the total planned outage and by machines measured in hours.







At Kariba North Bank Extension both machines G1 and G2 had the planned outage hours equally distributed between them for annual maintenance



Transmission System Operational Performance

The transmission system consists of infrastructure used for the transportation of electricity to bulk supply points that deliver power to large industrial and mining customers as well as ZESCO's distribution system for subsequent supply to various domestic customers. It is also interconnected to the Southern African Power Pool (SAPP).

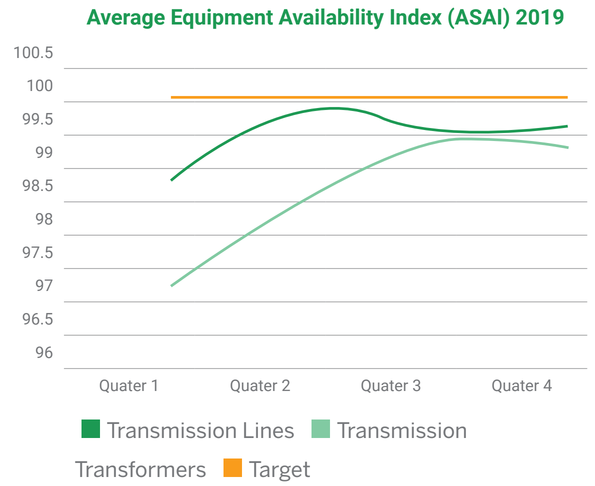
The asset base stood at about 10,600 km of High Voltage overhead transmission lines in the voltage class 66-330 kV and 150 substations with a combined transformation capacity of 8,237 MVA.

System Stability and Security
The performance of the transmission system was generally stable for most of the year with intermittent outages.

The Average Equipment Availability Index (AEAI) for transmission lines was 99.5% a drop from 99.62 % the previous year whilst that for power transformers was 98.6, also a drop from 99.33 %. The drop in performance was as a result of scheduled annual maintenance for the transformers and lines which intensified in the last quarter.

The Zambian grid did not experience any total blackout of the system during the year. However, there was extensive load management as a result of reduced generation due to low water levels.

The AEAI for the four quarters of 2019 for both transmission lines as well as power transformers is shown in Figure 1 below:



System Demand, Operations and Maintenance
The total power extracted from the ZESCO transmission grid was 14,931.37 GWh, 1% lower than 2018. The maximum demand for the year was 2,146.11MW which occurred on 25 March 2019, recorded at 19:02 hours. The transmission losses recorded in the year stood at 4.62 % which is below the ERB performance index threshold of 6%.

During the year, scheduled maintenance of transmission plant and equipment was conducted with an average compliance of 96.7% of the annual planned schedule. Other maintenance activities undertaken were of the preventive, corrective and condition based type.

The program to upgrade and replace aged primary equipment at major substations that form the transmission backbone continued. Some of the works undertaken during the year includes the installation of outstanding primary and secondary equipment on 66kV feeders ZCCZ1 and ZCCZ2 at Chambishi East substation which were completed and successfully commissioned. Installation of 66/33kV and 33/11kV transformers in Kabwe were completed and commissioned in October 2019. Installation and commissioning of new disconnector circuit breaker, terminal switchgear and bus-bar system at the Leopards Hill 88/132 kV Yard. These works are expected to improve power supply security and reliability.

Voltage Level/ Fault Type	Total Number of Faults
33 kV	2,857
11 kV	11,772
0.4 kV	16,908
Service Faults	448,147
Transformer Faults	970
HT Cable Faults	618

Distribution System Performance

During the year, none of the four indices set by the Regulator were achieved. To improve reliability of supply, there is need to focus on solutions that would reduce the duration and frequency of supply interruptions.

Demand Side Initiatives
We have continued to promote efficient energy use and ensure that we deliver quality supply through the demand side management initiatives. The following are some of the initiatives:

- Power quality monitoring - The installation of power quality monitors for various retail customer to ensure that the quality of supply is compliant ZS387 standard;

- Advanced metering infrastructure such as smart metering system will allow selective load management and remote upload of electricity tokens;
- Distribution of energy saving bulbs - we have so far distributed four million Light emitting diode (LED) bulbs resulting in substantial energy savings.

Diesel Generation Performance

As reported in the previous year, electricity supply to selected remote places continued to be supported by diesel power stations. The number of such stations has reduced to only four and two of these being supplemented by power imports from Malawi.The ratio of sales relative to cost of running the stations reduced during the year due to reduced sales (a drop of 60% while the operating costs increased by 22%).

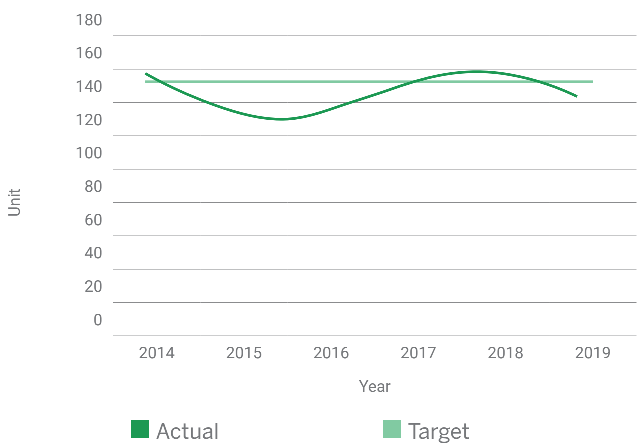
Diesel Generation Performance	2019	2018	2017	2016
Litres Consumed	1,577,641	1,588,298	2,389,889	5,670,453
Generation (GWh)	5.91	5.831	8.364	19.249
Cost (K millions)	20.6	16.91	21.277	48.687
Sales (K millions)	1.2	3.001	2.185	7.728
Sales as a % of Cost	5.8	17.7	10.3	15.9

Distribution System Reliability Indices

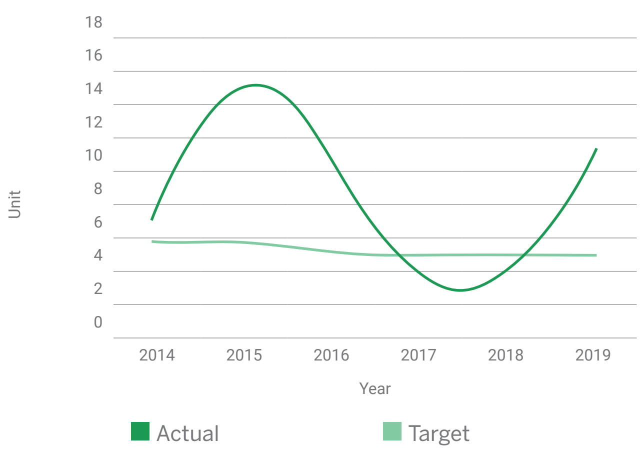
From the following distribution reliability indices, performance targets set by the Energy Regulation Board (ERB) were not achieved during the year 2019.

A summary of the performance is detailed in the following charts

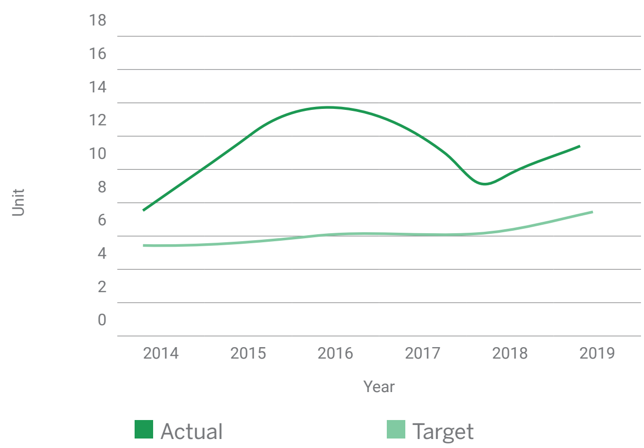
SAIDI[1]



SAIFI[2]



CAIDI[3]



ASAI[4]

Major Internal Activities to Improve Distribution System Operations

Maintenance works to enhance the operational performance of the distribution system continued in the year. These involved rehabilitation, reinforcement and expansion works of switchgear, transformer and distribution lines.

Some of the notable works include the following:

The completion of the rehabilitation of the Lusaka and Ndola transformer workshops to allow for internal maintenance of transformers which will make maintenance cheaper and lessen transformer repairs lead time.

1 System Average Interruption Duration Index
2 System Average Interruption Frequency Index.
3 Customer Average Interruption Duration Index.
4 Average System Availability Index

Environmental Sustainability

ZESCO Limited has a fully established Environmental Unit, charged with the responsibility to ensure that there is compliance with environmental laws and regulations that apply in environmental management, water management, biodiversity, waste management and air pollution. Environmental sustainability is important, as it directly affects our Operational sustainability of the business.

We remain committed in being compliant with all relevant laws and regulations, by meeting stringent environmental requirements especially when undertaking complex projects.

Renewable Energy

As part of its strategy of diversifying sources of generation, the company is promoting private partnerships in developing solar power plants and is providing technical assistance to would be investors. Renewable energy is environmental friendly due to little of no carbon print on the environment.

Renewable energy provides an answer to climate change which adversely affect our operational sustainability of the business, with 99% of internal generation being hydro and located in southern part of the country, which is prone to droughts. With more solar plants coming on the national grid, it is expected to reduce dependence on hydro-generation and bring in competitive tariffs.

Reducing our carbon footprint

We continue to promote an environment with low carbon footprint by replacing Diesel Generation Machines in Lundazi, Chama and Shango'mbo by connecting to National Grid.

Reducing environmental legal contravention

Various stakeholders that compel the company to be compliant with environmental management include:

Zambia Environmental Management Agency (ZEMA)

ZEMA is responsible for all environmental related management issues and ensure that operations and project related activities are in compliant with ZEMA laws and regulations. ZEMA ensures environmental impact assessments on biodiversity, water resources and compensation to communities are done before approving the projects.

During the year, the ZEMA approved 8 projects following successful environmental impact assessment conducted.

National Heritage Conservation Commission (NHCC)

National Heritage Conservation Commission (NHCC) is one key stakeholder engaged to when carrying out feasibility studies especially if the land is classified as National Heritage Site.

The NHCC undertook a detailed land survey for Kundabwika and Kabwelume sites for development of the 10MW and 62MW power stations respectively, under the Kalungwishi River Hydroelectric Scheme. A total land size of 1000hactors at Kundabwika site has been surveyed. Survey works at Kabwelume site are underway.

The survey was aimed at identifying major environmental and social issues surrounding the Project. The survey revealed that the proposed site is located within Chibwika Ntambu Game Management Area and partly in Lunga Forest Reserve. The site is also situated 30km away from the nearest human settlement.

Water Resources Management

The Power Stations on the Kafue River are cascaded to conserve the water resource. The water used for generation at Itezhi-Tezhi Power Station is released for use at Kafue Gorge Power Station and then cascaded down stream to Kafue Gorge Lower Power Station. Despite holding the water in the dams, water is released after generation used in to the rivers to maintain the ecology systems.

Water Resources Management Authority and Zambezi River Authority manage the Water Resources at Kafue River and Lake Kariba respectively. Zambezi River Authority, allocates water for generation on an annual basis to Kariba North Bank Power Station.

Compensation of displaced settlers

The displaced Project Affected People were compensated for loss of properties and fields for various projects amounting to K13.3 million in the year under review.

The following were projects with high impact on environment;

- Compensation payment to 36 families their structures on the Kasama – Nakonde 330kV and Kasama – Kayambi 132kV Transmission Lines Project was done;
- Compensation payment to 9 families on the 2nd Kabwe-Pensulo 330kV Transmission Line Project
- Compensation paid to 68 families on the Zambia Malawi Interconnector Project;
- Compensation payment to 40 families for fruit trees affected by the Mongu – Kalabo 66/11kV Line Upgrade project;
- Compensation payment for structures to the 49 families affected on the Mongu – Kalabo 66/11kV Line Upgrade project was done;
- Compensation of affected families under the Chipata-Lundazi-Chama 132kV Transmission Line Project;
- Compensation for affected fruit trees on the Connection of the Luangwa to the National Grid
- Compensation for structures affected by implementation of the Kafue Gorge lower transmission line project;

The company works with independent professional valuers in determining the compensation for affected people. The affected people are engaged in the process of determining compensation to avoid future disputes.

Hydrology

Hydrology is key to hydro generation sustainability. It monitors water flow at Kafue River catchment areas affecting Itezhi Tezhi and Zambezi River flows in Kariba Dams.

Cumulative rainfall performance during the year under review (2018/19 season) was below normal rainfall. Most parts of the western, central and southern provinces had received below normal. The Kafue and Zambezi river systems lay in these catchments where the below normal rainfall was received. Hence there was significant reduction in water inflows into ITT dam and Lake Kariba. At Lake Kariba, the reservoir level dropped considerably compared to the previous year.

The Itezhi-Tezhi reservoir reached a maximum of 1029.58 metres above sea level (m. ASL) on 19 April, 2019. The design maximum and minimum water levels for Itezhi-Tezhi are 1030.50 m ASL and 1006.00 m ASL respectively, while for Kafue Gorge are 977.00 m ASL and 973.30 m ASL respectively. The water levels at ITT and Kafue Gorge dams on 31 December 2019 were 1012.34m ASL and 974.34m ASL respectively, compared to the previous year's corresponding levels of 1024.32 m and 976.50m ASL respectively.

At Lake Kariba, the maximum level attained during the year under review was 482.35m above Kariba Datum, which occurred on 1 January 2019. On 31 December 2018, the water level in Lake Kariba was 476.69m above Kariba Datum. The minimum water level is 475.50 m. There was no water released through the spillway gates during 2019.

The end of year water levels at both Itezhi-Tezhi and Kariba were below the desired region.

Performance of Power Stations Water Usage

Average availability of generating plant was at 72% with an average Capacity Factor of 50%. There was only sufficient water to generate firm and a bit of secondary power at Kafue Gorge Power Station. At the Kariba North Bank power stations, water utilization exceeded the annual allocated by the Zambezi River Authority closing at 110% of the allocation. At Victoria Falls Power station, though adequate water was available to maximize generation, a critical flow of 400m3/sec occurred on 11 July 2019, which serves as a constraint to generation during day time due to required sharing of the water with tourism at the falls. At the Small Hydro power stations, generation depended on the respective river flows which were available as per flow regime.

Biodiversity

The company takes keen interest in the restoration of natural environment that could have been affected by the major undertakings of projects.

Biodiversity activities include:

- A Gill Net Survey was undertaken on Luongo Dam with Officers from Fisheries Department in Mansa. The exercise was aimed at determining species composition following conclusion of the fish restocking exercise in order to assess its effectiveness. This was part of the upgrade of Musonda Hydro Power Station to 10 MW.
- Biomass assessments in Luakera National Forest Reserve, Zambezi National Forest and Kelondu Community Forest in Mwinilunga and Ikelenge Districts were conducted by the Forestry Department in line with the provisions of the Forestry Act.
- Tree planting exercise in Ikelenge as part of campaign against deforestation. This exercise is critical as Northwestern provides the source of the Zambezi River, which flows into Kariba Dam.
- Tree planting exercise in Lunzua River catchment area in Mbala District, where a 14.8 MW Lunzua Small Hydro Power Station is located.
- Partnered with Forest Department to continuous tree planting.

The company is committed to continue working with various stakeholders to compliance with relevant laws in protecting the environment.

Our Industry

Institutional Framework

Ministry of Energy (MoE) is responsible for policy direction, development and management of the energy sector.

The following statutory bodies supports the Electricity Supply Industry;

- Energy Regulation Board (ERB)
- Zambezi River Authority (ZRA)
- Rural Electrification Authority (REA)

Industry Legal Framework.

The following are the three major statutes that govern the Zambian Electricity Supply Industry (ESI) in conjunction with other statutes that supports the sector.

Energy Regulation Act - established the Energy Regulation Board, as a body corporate, whose primary role is to regulate players in the energy sector.

Electricity Act - provides for the legal framework to regulate the generation, transmission, distribution and supply of electricity.

Rural Electrification Act - established the Rural Electrification Authority whose primary role is to provide increase rural access to electricity.

The statutes were amended and enacted during the year, and are expected to change the ESI business landscape through among others the following;

- Strengthening the mandate of the Energy Regulator
- Facilitating the adoption of the Open Access Regime in the ESI.

The ESI is broken down into Generation, Transmission and Distribution.

Generation Sector

The ESI has a total installed capacity 2,889 MW. The main players in the industry include:

- ZESCO Limited;
- Kariba North Bank Extension Power Corporation (KNBEPC) Limited;
- Maamba Collieries Ltd (MCL);
- Itezhi Tezhi Power Corporation(ITPC);
- Copperbelt Energy Corporation Plc(CEC);
- Ndola Energy Company Limited (NECL);
- Lunsemfwa Hydro Power Company(LHPC);
- Bangweulu Power Company
- Ngonye Power Company

Generation Mix
The generation mix has significantly improved from 2008 when the current energy policy was developed.

At that time, the ESI was predominantly hydro dependent at 95%. The contribution from other generation sources accounted for 5%.

Currently, the dependence on hydroelectricity has reduced to 83% and private sector participation improved the industry generation mix resulting in 17% growth in alternative electricity generation means. The new sources, which have contributed to this landscape transformation are Thermal (Coal fired) and Heavy Fuel Oil Plant.

The figure below shows the current generation mix in the ESI benchmarked against the 2008 position.

Transmission Sector

The transmission infrastructure has five voltage categories i.e. 330kV, 220kV, 132kV, 88kV and 66kV. The power system forms part of the synchronized interconnected power systems of the Southern Africa Power Pool (SAPP).

ZESCO's National Control Centre under the Systems Operation and Power Trading divisions takes the provisional role of System Operator (SO) responsible for Grid and Energy Management in the sector.

The following are the responsibilities of the SO:

- Operate a transmission network and its inter-connectors with other networks in order to guarantee the security of supply of electricity;
- Manage energy flows on the transmission network and maintain a balance of the energy flow;
- Ensure the availability of the necessary ancillary services for the generation of electricity;
- Provide sufficient information to other transmission regional operators on an interconnected system to ensure secure and efficient operation;
- Ensure a coordinated development of the interconnected system;
- Ensure non-discrimination between system users or classes of system users;
- Provide a system user with the information needed for efficient access to the transmission system or distribution system, dispatching of electricity and determining the use of inter-connectors; and
- Carry out any other functions that may be prescribed.

The following are players in the transmission sector:

ZESCO
In 2019, ZESCO owned a substantial share of the transmission infrastructure in the sector. The infrastructure spans over 10,600 km of high voltage transmission lines in all the voltage classes (i.e. 330-66 kV) and about 150 high voltage substations with a combined transformation capacity approximately 8,240 MVA.

The transmission network is key in the evacuation of electricity from various generation stations to load centres across the country and provides interconnection to utilities within SAPP region.

CEC
CEC operates the transmission network in the Copperbelt province of Zambia, which transmit power to some mining entities and ZESCO for its domestic customers.

The infrastructure spans 1,005km of high voltage transmission lines in the voltage class ranging 220-66kV and 42 substations.

MCL and LHPC
MCL and LHPC own small sections of transmission lines that evacuate electricity from their respective power plants to the ZESCO Grid at the point of interconnection.

Distribution Sector

The Distribution Sector is a fully regulated market with two distribution companies providing electricity supply to retail customers. The players are:

- ZESCO Limited – with the largest share of the customer base around 99.7%.
- North Western Energy Corporation (NWEC) - accounts for the remaining 0.3%.

There are a few Off-Grid solutions such as Zengamina Mini hydro (North Western Province) and Chinsanka Solar (Luapula Province). The extent of the off grid solution's contribution to the ESI is yet to attain significant levels.

Sector Overview

The Zambia Electricity Supply Industry is still growing, as there is room for growth in all the sectors. Highlighted below are some of the opportunities for growth by sector:

Generation
The generation sector has a lot of growth potential to help expand the current industry's installed capacity.

- Hydro Generation – The country has a hydro generation potential of about 6GW with only less than 50% developed. Currently there are two projects in advanced stage of implementation that will add 765MW in the next 24 months.
- Renewable Energy – Zambia has an approximately 68% of sunshine hours annually with an average irradiation of 5.5kWh/m^2/day. These conditions provide potential for development of solar photovoltaic projects. Currently there are two projects under development in the Lusaka Multi Facility Economic Zone (LMFEZ).

Transmission
The sector is taking advantage of the country's centralized location in the region by developing robust transmission corridors and interconnection capacities with bordering countries.

Distribution
According central statistical office and ERB, the country has an estimated number of households of about 3 million with only 31% accessing electricity. The rural household electrification is at 4.4% whereas the urban household's electrification stands at 67.3%.

Financial Statements

Group Financial Statements

For the year ended 31 December 2019

The Old Zambian Kwacha (ZMK) is obsolete. It was replaced with the new Zambian Kwacha (ZMW) on January 1, 2013.
One ZMW is equivalent to 1000 ZMK.

Report of The Directors

The Directors present their report and audited consolidated financial statements for the year ended 31 December 2019.

Principal Activity

The principal activities of the ZESCO Limited ("Company") and its subsidiaries, Kafue Gorge Lower Power Development Corporation Limited, Batoka North Bank Power Corporation Limited and Kariba North Bank Extension Power Corporation Limited, together the "Group" continued to be the generation, transmission, distribution and supply of electricity, locally and in the region. The Group through its joint venture Itezhi Itezhi Power Corporation Limited and associates Zambia Electrometer Limited and El Sewedy Electric Zambia Limited also manufactures electricity meters, compact fluorescent lights and distribution transformers ranging from 25KV to a maximum of 5,000KV (5mva).

Registered Office and Principal Place of Business

Stand 6949, Great East Road

Lusaka

Results and Dividends

The loss for the year amounted to K5, 376 million (2018: profit: K1, 346 million). The Directors do not recommend payment of a dividend in respect of the year ended 31 December 2019.

Directors

The Directors who held office during the year were:

Dr. Mbita Chintundya Chitala	Board Chairperson
Mr. Victor M. Mundende	
Mr. Trevor Kaunda	Appointed on 20 September 2019
Mr. George Mpundu Kanja	
Mr. Pythias Mulenga	
Mr. Chibwe D. Mwelwa	
Ms. Kavumbu Hakachima	
Brig. General. Emeldah Chola	Resignation on 12 October 2019

Corporate Governance

The Board continues to be committed to high standards of corporate governance, which is fundamental to discharging their leadership responsibilities. The Board applies integrity, principles of good governance and accountability throughout its activities.

Property, Plant and Equipment

There was a change in the Group's property, plant and equipment during the year resulting from investments made in capital and operating projects. The Group invested a total of K10, 475 million (2018: K13, 556 million).

Intangible Assets

During the year the Group acquired software amounting to K0.9 million (2018: K7.8 million).

Exports

The value of electricity exports by the Group were K1, 151 million (2018: K1, 063 million).

Donations

The Group made donations during the year amounting to K5.8 million (2018: K5.8 million).

Research and Development

The Group's research and development activities during the year amounted to K4.9 million (2018: K6.7 million).

Share Capital

The Group's authorised share capital remained unchanged during the year.

Employees

The average number of employees during each month of the year was as follows:

	2019	2018
January	6,836	6,872
February	6,808	6,906
March	6,799	6,915
April	6,785	6,911
May	6,773	6,904
June	6,769	6,899
July	6,752	6,903
August	6,754	6,901
September	6,724	6,929
October	6,752	6,920
November	6,756	6,917
December	6,740	6,988

The total remuneration and other related staff costs paid to the employees during the year was K2, 525 million (2018: K1, 473 million).

Key developments during the year

- The generation of electricity during the year reduced by 7% to 10,078 GWh, from 10,847 GWh in 2018. Generation at Kariba North Bank and Kafue Gorge Power Stations reduced by 16% and 6% respectively due to low water levels at Kariba and Itezhi Tezhi Dams resulting from drought experienced in 2018/19 rainy seasons which adversely affected the generation of electricity at the major Power Stations. The Group importation of power increased by 31% to 199 GWh, from 151 GWh in 2018, on account of importation of power from ESKOM of South Africa and Southern African Power Pool. Further, the power purchased from Independent Power Producers reduced by 9%, to 4,039 GWh from 4,444 GWh in 2018, contributing increased load management in the year under review.
- The construction of the 750 MW Kafue Gorge Lower Project reached 80% completion at the end of the year under review. The total project cost is US$1.5 billion financed through 85% debt and 15% through equity. The project is being financed by senior debt facility from China Exim Bank and International Commercial Bank of China (ICBC) at a project cost of US$1.5 billion. The project once completed will reduce the load management being experienced due to low water inflows at Kariba Dam. The Contractor Sino Hydro Corporation Limited expects to complete the project in the third quarter of 2020. Further, the financing of the transmission line is financed by 85% debt from ICBC amounting to US$195 million and 15% equity.
- during the year, the Group completed a cheque swap between the Government of the Republic of Zambia and Zambia Revenue Authority amounting to K351 million. The cheque swap was offset against the GRZ electricity arrears and also ZESCO tax obligations at the close of 2019.
- During the year, the Electricity and Energy Regulatory Board (ERB) Acts were enacted into law by Parliament. The Electricity Act will result into Open Access Regime which will allow players in the generation to supply directly to customers, without ZESCO being the sole off taker. The Electricity Act will have resulted in establishment of Systems Operator to operate the transmission network system, which will give access to all players in generation to transmit the power by charging wheeling cost. The ERB Act will give more authority to the Regulator to adjust tariffs even if the customers are governed the Power Purchase Agreements.

Health and safety of Employees

The Group operates an integrated Safety, Health, Environment and Quality system called SHEQ, Management System based on but not limited to the requirements of ISO 9001, ISO 14001, ISO 45001 and ISO 27001 international standards:

ZESCO's commitment to safety, health, environment and quality and information security is achieved through:

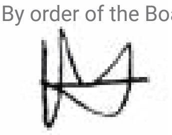
- ensuring that ZESCO's operations are safe by minimising risk and eliminating harm to employees, contractors, visitors and customers;
- ensuring sustainable infrastructure development and operating with minimum environmental impact;
- ensuring minimisation of waste in general, and prevention of land, water and air pollution;
- ensuring a secure and robust cyberspace in the Corporation;
- ensuring increased access to reliable and safe supply of electricity that sustains business continuity;
- Ensuring effective and efficient communication with all stakeholders on matters relating to service provision;
- Ensuring consistent provision of resources, training, equipment and other support systems to enable fulfilment of this policy;
- Ensuring compliance to legal, regulatory and other requirements;
- Ensuring consultation and participation of workers and its representatives; and
- Ensuring continual improvement of SHEQ management systems;

It is the duty of each ZESCO employee and contractors to comply with this policy to enable the Group achieve its strategic objectives and establish and entrench a SHEQ driven culture within the Group.

Auditors

Messrs Deloitte & Touche's term of office comes to an end at the next Annual General Meeting. A resolution proposing their re-appointment as auditors and authorising the Directors to determine their remuneration will be put to the Annual General Meeting.

By order of the Board.



Mr. McRobby Chiwale

Group Secretary

Lusaka

Statement of Responsibility for the Annual Consolidated Financial Statements

The Companies Act, 2017 requires the Directors to prepare financial statements for each financial year that give a true and fair view of the state of affairs of the Group as at the end of the financial year and of its financial performance. It also requires the Directors to ensure that the Group keeps proper accounting records that disclose, with reasonable accuracy, the financial position of the Group. They are also responsible for safeguarding the assets of the Group. The Directors are further required to ensure the Group adheres to the corporate governance principles or practices contained in Part VII Sections 82 to 122 of the Companies Act, 2017.

The Directors accept responsibility for the annual consolidated financial statements, which have been prepared using appropriate accounting policies supported by reasonable estimates, in conformity with International Financial Reporting Standards and the requirements of the Companies Act, 2017.

The Directors further accept responsibility for the maintenance of accounting records that may be relied upon in the preparation of financial statements, and for such internal controls as the directors determine necessary to enable the preparation of consolidated financial statements that are free from material misstatement whether due to fraud or error. In addition, the Directors are responsible for preparing the Directors' report.

The Directors are of the opinion that the financial statements set out on pages 8 to 62 give a true and fair view of the state of the financial affairs of the Group and of its financial performance in accordance with International Financial Reporting Standards and the Companies Act, 2017. The Directors further report that they have implemented and further adhered to the corporate governance principles or practices contained in Part VII, Sections 82 to 122 of the Companies Act, 2017.

The Directors have made an assessment of the ability of the Group to continue as a going concern and have no reason to believe that the business will not be a going concern for at least twelve (12) months from the date of this statement, except as disclosed out under note 3.2.2

The auditor is responsible for reporting on whether the consolidated financial statements are fairly presented in accordance with the applicable financial reporting framework described above.

Approval of the consolidated financial statements

The consolidated financial statements of ZESCO Limited and its subsidiaries, set out on pages 8 to 62, were approved by the Board of Directors on June 2020 and signed on its behalf by:

Chairman

Managing Director

Independent Auditor's Report

Deloitte.

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To the members of

ZESCO Limited

Report on the Audit of the Consolidated Financial Statements Opinion

We have audited the consolidated financial statements of ZESCO Limited and its subsidiaries, set out on Pages 8 to 62, which comprise the consolidated statement of financial position as at 31 December 2019, the consolidated statement of profit or loss and other comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the year then ended, and the notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements give a true and fair view of the financial position of ZESCO Limited and its subsidiaries as at 31 December 2019, and of its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standards and in the manner required by the Companies Act, 2017.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Company in accordance with sections 290 and 291 of the International Ethics Standards Board for Accountants Code of Ethics for Professional Accountants (Revised July 2016), parts 1 and 3 of the International Ethics Standards Board for Accountants International Code of Ethics for Professional Accountants (including International Independence Standards) (Revised July 2018) and other independence requirements applicable to performing audits of financial statements in Zambia. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current year. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters	How our audit addressed the key audit matter
Impairment of trade receivables	
The Group exercises significant judgement using subjective assumptions over both when and how much to record as expected credit loss provisions and estimation of the amount of the impairment provision for trade and other receivables. Because trade and other receivables form a major portion of the Group's assets, and due to the high level of subjectivity involved in determine the expected credit loss provision for trade and other receivables as disclosed in note 19 to the financial statements, this area was a matter of most significance to the audit. As at 31 December 2019, the gross amount of trade receivable was K7.8 billion against which an impairment provision of K6.9 billion was recorded. The impairment provision policy is presented in accounting policies in note 3.16 to the financial statements, which indicates that all financial assets are stated at amortised cost net of identified impairments.	We performed the following audit procedures: • Tested inputs into the calculation of the expected credit loss provision, including the ageing, validity and completeness; • Assessed the recoverability taking into account the type of debtors and historical payment terms; • Performed a retrospective review of the expected credit loss provision previously raised against the actual bad debts written off in the current year; • Tested the collection of subsequent receipts received after year-end; • Reviewed the IFRS 9 assessment and procedures carried out; • Reviewed the reasonableness of the simplified model adopted for impairment assessments;

Key audit matters	How our audit addressed the key audit matter
The Group exercises significant judgement using subjective assumptions over both when and how much to record as an impairment, and estimation of the amount of the impairment provision for financial assets. Due to the significance of the recorded financial assets trade receivables, and the significance of the balances overdue but not impaired, judgements used in classifying financial assets into stages stipulated in IFRS 9 — Financial Instruments and determining related provision requirements, this was a matter of most significance to the audit.	• Performed an independent assessment of the provision taking into account the factors above; and • Reviewed the appropriateness of the disclosures around impairments in line with the requirements of the IFRS 9. We found that the determined expected credit loss provision was initially misstated and adjustments were appropriately passed. Subsequently, requirements of IFRS 9: Financial Instruments were complied with and we concur with the recorded impairment balance.

Other Information

The Directors are responsible for the other information. The other information comprises the Directors' Report, as required by the Companies Act, 2017, which we obtained prior to the date of this auditor's report. The other information does not include the financial statements and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance or conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained on the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the Directors for the Consolidated Financial Statements

The Directors are responsible for the preparation of consolidated financial statements which give a true and fair view in accordance with International Financial Reporting Standards and the requirements of the Companies Act, 2017, and for such internal control as the Directors determine is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Directors are responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Directors either intend to liquidate the Group or to cease operations, or have no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Consolidated Financial

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with ISAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Directors.
- Conclude on the appropriateness of the Directors' use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with the Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Report on other legal and regulatory requirements

Section 250 (2) and 259 (3) of the Companies Act, 2017 requires that in carrying out our audit, we consider and report on whether:

- there is a relationship, interest or debt which we as the Group's auditors have in the Group;
- There are serious breaches by the Group's Directors of the corporate governance principles or practices contained in Part VII sections 82 to 112 of the Companies Act, 2017; and
- there is an omission in the financial statements as regards particulars of loans made to a Group officer (a director, Group secretary or executive officer of a Group) during the year, and if reasonably possible, disclose such information in our opinion.

In respect of the foregoing requirements, we have no reportable matters.

Deloitte & Touche

Andrew Njovu

Partner

AUD/F000802

Date:

Consolidated statement of profit or loss and other comprehensive income

For the year ended 31 December 2019 (Figures in ZMW)

	Notes	2019	2018
REVENUE	5	10,326,394	9,534,935
Cost of sales	6	(5,762,002)	(5,285,630)
GROSS PROFIT		4,564,392	4,249,305
Other operating income	7	1,612,226	561,475
Other losses	8	(2,342,722)	(1,652,092)
Marketing expenses		(17,695)	(19,718)
Administration expenses		(4,374,539)	(3,449,279)
Other expenses	9	(4,095,474)	(2,319,648)
Finance costs	10	(629,857)	(554,735)
Share of profit of associates	17.1	8,071	22,247
Share of loss of a joint venture	17.1	(662,951)	440,064
LOSS BEFORE TAX		(5,938,549)	(2,722,381)
Income tax (expense) credit	12	365,907	4,068,348
(LOSS) PROFIT FOR THE YEAR		(5,572,642)	1,345,967
OTHER COMPREHENSIVE INCOME			
Items that will not be reclassified subsequently to profit or loss:			
Change in defined benefit obligation	23	601,540	-
Gain on revaluation of Property, plant and Equipment		249,584	-
Income tax relating to items that will not be reclassified subsequently to profit or loss		(225,195)	-
Other comprehensive income for the year, net of income tax		625,929	-
Total Comprehensive (Loss) Income For The Year		(4,946,713)	1,345,967

Consolidated statement of financial position

At 31 December 2019

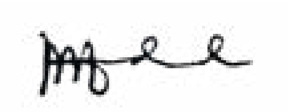
	Notes	2019	2018
ASSETS			
Non current assets			
Property, plant and equipment	14	67,092,013	58,736,180
Intangible assets	15	68,033	68,632
Right of use assets	16	17,133	-
Investments in associates	17.1	67,270	59,199
Investments in a joint venture	17.1	308,810	971,761
Investments in strategic fund	17.1	-	19,580
Deferred tax asset		429,199	
Total non current assets		67,982,458	59,855,352
Current assets			
Inventories	18	592,065	869,591
Trade and other receivables	19	2,743,299	2,671,493
Amounts due from related parties	21	3,310,786	3,133,088
Cash and bank balances		2,644,081	2,460,653
Total current assets		9,290,231	9,134,825
TOTAL ASSETS		77,272,689	68,990,177
EQUITY AND RESERVES			
Capital and reserves			
Issued capital	20	2,825,118	2,825,118
Revaluation reserve		12,992,382	13,999,659
Retained earnings		1,779,227	6,067,060
Total equity		17,596,727	22,891,837
Non current liabilities			
Borrowings	22	27,367,698	20,437,978
Retirement benefit obligation	23	2,020,827	2,096,160
Capital grants and contributions	24	2,708,961	2,602,043
Deferred tax liability	13	1,142,030	1,556,231
Lease liabilities	28	19,271	-
Total non current liabilities		33,258,787	26,692,413
Current liabilities			
Trade and other payables	25	16,454,086	13,507,037
Amounts due to related parties	21	4,570,031	2,427,680
Borrowings	22	2,646,569	1,790,821
Retirement benefit obligation	23	833,748	178,250
Capital grants and contributions	24	118,151	130,006
Current tax liabilities	12	1,740,422	1,317,201

	Notes	2019	2018
Lease liabilities	28	11,599	-
Bank overdraft	26	42,570	54,933
Total current liabilities		26,417,176	19,405,928
Total liabilities		59,675,963	46,098,341
TOTAL EQUITY AND LIABILITIES		77,272,689	68,990,177

The responsibilities of the Group's Directors with regard to the preparation of the consolidated financial statements are set out on page 4. The consolidated financial statements on pages 8 to 62 were approved by the Board of Directors and authorised for issue on .... and were signed on its behalf by:

Chairman

Dr. Mbita Chitala



Managing Director

Mr. Victor M Mundende

Consolidated Statement of Changes in Equity

For the year ended 31 December 2019

	Share capital	Amount pending allotment of shares	Revaluation reserve	Retained earnings	Total
Balance at 1 January 2018	194	2,824,924	16,976,452	4,045,031	23,846,601
Issue of shares	2,824,924	(2,824,924)	-	-	-
Profit for the year	-	-	-	1,345,967	1,345,967
Deferred tax on revaluation	-	-	236,622	-	236,622
*Adjustments on revaluation	-	-	(2,537,353)	-	(2,537,353)
Amortisation of revaluation reserve	-	-	(676,062)	676,062	-
Balance at 31 December 2018	2,825,118	-	13,999,659	6,067,060	22,891,837
Issue of shares	-		-	-	-
Profit for the year	-	-	-	(5,572,642)	(5,572,642)
Other comprehensive income for year				625,929	625,929
Deferred tax on revaluation	-	-	230,608	-	230,608
*Adjustments on revaluation	-	-	(579,005)	-	(579,005)
Amortisation of revaluation reserve	-	-	(658,880)	658,880	-
Balance at 31 December 2019	2,825,118	-	12,992,382	1,779,227	17,596,727

*Adjustments arise from the fixed assets which were captured under revaluation of assets and yet they were still captured under Capital Works in Progress.

Consolidated Statement of Cash Flows

For the year ended 31 December 2019

	Notes	2019	2018
Cash flows from operating activities			
Loss for the year		(5,938,549)	(2,722,381)
Adjustments for:			
- Share of profit loss of associates	17.1	(8,071)	(22,247)
- Share of loss of joint venture	17.1	662,951	(440,064)
- Interest income	7	(13,361)	(10,027)
- Finance costs recognised in profit or loss	10	629,857	554,735
- Net exchange losses recognised on borrowings	22	4,939,617	4,171,429
- Elimination of depreciation on revaluation	14	(127,895)	-
- Loss (gain) on disposal of property, plant and equipment		1,138	(244)
- Depreciation of non-current assets	14	1,931,786	1,966,878
- Capitalised depreciation	14	(609)	(425)
- Loss on revaluation of assets	14	24,877	-
- Amortisation of intangible assets	15	8,647	7,873
- Depreciation on right of use assets	16	10,519	-
- ERB Strategic Reserve Fund write off	17	25,227	-
- Impairment of investments	17	6,130	-
- Amortisation of capital grants and contributions	24	(174,380)	(151,425)
- Adjustment upon adoption of IFRS 9	19	-	(243,089)
- Impairment loss recognised on trade receivables	19	2,204,759	1,287,324
- Impairment loss recognised on amounts due from related parties		520,367	-
- Impairment reversal recognised on trade receivables	19	(224,304)	(91,452)
- Impairment loss recognised on other receivables	19	500,457	27,718
- Impairment reversal recognised on other receivables	19	(143,850)	(252,936)
		4,835,312	4,081,666
Movements in working capital:			
Decrease in inventory		277,526	133,172
Increase in trade and other receivables		(2,408,868)	(1,205,905)
Increase in amounts due from related parties		(698,065)	(895,953)
Increase in trade and other payables		2,947,049	6,138,925
Increase in deferred liabilities		1,181,705	85,645
Increase in amounts due to related parties		2,142,351	1,193,787
Cash generated from operations		8,277,010	9,531,336
Interest paid	10	(629,857)	(554,735)
Strategic reserve fund payments	17.2	(5,647)	(5,984)
Income taxes paid	12	(48,859)	(39,789)
Net cash generated by operating activities		7,592,648	8,930,829

	Notes	2019	2018
Cash flows from investing activities			
Proceeds from disposal of property, plant and equipment		782	944
Payments for property, plant and equipment	14	(10,475,113)	(13,555,528)
Payments for intangible assets	15	(858)	(7,765)
Interest received	7	13,361	10,027
Net cash used in investing activities		(10,461,828)	(13,552,322)
Cash flows from financing activities			
Repayment of borrowings	22	(3,146,274)	(2,330,626)
Repayment of lease liabilities	28	(2,914)	-
Proceeds from capital grants and contributions	24	222,034	464,856
Proceeds from borrowings	22	5,992,125	6,925,241
Net cash generated from financing activities		3,064,971	5,059,471

For the year ended 31 December 2019

Notes to The Financial Statements

1. Corporate Information

ZESCO Limited ("the Company") and its subsidiaries, Kafue Gorge Lower Power Development Corporation Limited, Batoka North Power Corporation Limited and Kariba North Bank Extension Power Corporation Limited are together the "Group" are incorporated and domiciled in Zambia. Its parent and ultimate holding Company is Industrial Development Corporation Zambia Limited, a Company incorporated in Zambia. The address of its registered office, principal place of business and principal activities are disclosed in the Directors' report on page 1.

2. Adoption of new and revised standards

2.1. New and amended IFRS Standards that are effective for the current year

Impact of initial application of IFRS 16 Leases

In the current year, the Group has applied IFRS 16 (as issued by the IASB in January 2016) that is effective for annual periods that begin on or after 1 January 2019.

IFRS 16 introduces new or amended requirements with respect to lease accounting. It introduces significant changes to lessee accounting by removing the distinction between operating and finance lease and requiring the recognition of a right-of-use asset and a lease liability at commencement for all leases, except for short-term leases and leases of low value assets. In contrast to lessee accounting, the requirements for lessor accounting have remained largely unchanged. Details of these new requirements are described in note 3. The impact of the adoption of IFRS 16 on the Group's financial statements is described below.

The date of initial application of IFRS 16 for the Group is 1 January 2019.

The Group has applied IFRS 16 using the modified retrospective approach, with the cumulative effect recognised as an adjustment to equity at the date of initial application."

(a) Impact of the new definition of a lease

The Group has made use of the practical expedient available on transition to IFRS 16 not to reassess whether a contract is or contains a lease. Accordingly, the definition of a lease in accordance with IAS 17 and IFRIC 4 will continue to be applied to those contracts entered or modified before 1 January 2019. The change in definition of a lease mainly relates to the concept of control. IFRS 16 determines whether a contract contains a lease on the basis of whether the customer has the right to control the use of an identified asset for a period of time in exchange for consideration. This is in contrast to the focus on 'risks and rewards' in IAS 17 and IFRIC 4.

The Group applies the definition of a lease and related guidance set out in IFRS 16 to all contracts entered into or changed on or after 1 January 2019. In preparation for the first-time application of IFRS 16, the Group has carried out an implementation project. The project has shown that the new definition in IFRS 16 will change the scope of some of its contracts that meet the definition of a lease for the Group."

(b) Impact on Lessee Accounting

(i) Former operating leases

IFRS 16 changes how the Group accounts for leases previously classified as operating leases under IAS 17, which were off balance sheet.

Applying IFRS 16, for all leases (except as noted below), the Group:

(a) Recognises right-of-use assets and lease liabilities in the statement of financial position, initially measured at the present value of the future lease payments;

(b) Recognises depreciation of right-of-use assets and interest on lease liabilities in profit or loss;

(c) Separates the total amount of cash paid into a principal portion (presented within financing activities) and interest (presented within financing activities) in the statement of cash flows."

Lease incentives (e.g. rent-free period) are recognised as part of the measurement of the right-of-use assets and lease liabilities whereas under IAS 17 they resulted in the recognition of a lease incentive, amortised as a reduction of rental expenses generally on a straight-line basis.

Under IFRS 16, right-of-use assets are tested for impairment in accordance with IAS 36.

(ii) Former finance leases

The main differences between IFRS 16 and IAS 17 with respect to contracts formerly classified as finance leases is the measurement of the residual value guarantees provided by the lessee to the lessor. IFRS 16 requires that the Group recognises as part of its lease liability only the amount expected to be payable under a residual value guarantee, rather than the maximum amount guaranteed as required by IAS 17. This change did not have a material effect on the Group's financial statements.

(c) Impact on Lessor Accounting

IFRS 16 does not change substantially how a lessor accounts for leases. Under IFRS 16, a lessor continues to classify leases as either finance leases or operating leases and account for those two types of leases differently.

However, IFRS 16 has changed and expanded the disclosures required, in particular with regard to how a lessor manages the risks arising from its residual interest in leased assets.

Under IFRS 16, an intermediate lessor accounts for the head lease and the sub-lease as two separate contracts.

The intermediate lessor is required to classify the sub-lease as a finance or operating lease by reference to the right-of-use asset arising from the head lease (and not by reference to the underlying asset as was the case under IAS 17).

(d) Financial impact of the initial application of IFRS 16

The adoption of IFRS 16 did not have a material impact on the performance, position and net cash flows for the Group.

In the current year, the Group has applied a number of amendments to IFRS Standards and Interpretations issued by the IASB that are effective for an annual period that begins on or after 1 January 2019. Their adoption has not had any material impact on the disclosures or on the amounts reported in these financial statements.

Amendments to IFRS 9 Prepayment Features with Negative Compensation	The Group has adopted the amendments to IFRS 9 for the first time in the current year. The amendments to IFRS 9 clarify that for the purpose of assessing whether a prepayment feature meets the 'solely payments of principal and interest' (SPPI) condition, the party exercising the option may pay or receive reasonable compensation for the prepayment irrespective of the reason for prepayment. In other words, financial assets with prepayment features with negative compensation do not automatically fail SPPI.
Annual Improvements to IFRS Standards 2015–2017 Cycle Amendments to IAS 12 Income Taxes	The Group has adopted the amendments included in the Annual Improvements to IFRS Standards 2015–2017 Cycle for the first time in the current year. The Annual Improvements include amendments to the following applicable standard:
	IAS 12 Income Taxes The amendments clarify that the Group should recognise the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the Group originally recognised the transactions that generated the distributable profits. This is the case irrespective of whether different tax rates apply to distributed and undistributed profits.
	IAS 23 Borrowing Costs The amendments clarify that if any specific borrowing remains outstanding after the related asset is ready for its intended use or sale, that borrowing becomes part of the funds that an entity borrows generally when calculating the capitalisation rate on general borrowings.
Amendments to IAS 19 Employee Benefits Plan Amendment, Curtailment or Settlement	The Group has adopted the amendments of IAS 19 for the first time in the current year. The amendments clarify that the past service cost (or of the gain or loss on settlement) is calculated by measuring the defined benefit liability (asset) using updated assumptions and comparing benefits offered and plan assets before and after the plan amendment (or curtailment or settlement) but ignoring the effect of the asset ceiling (that may arise when the defined benefit plan is in a surplus position). IAS 19 is now clear that the change in the effect of the asset ceiling that may result from the plan amendment (or curtailment or settlement) is determined in a second step and is recognised in the normal manner in other comprehensive income.
IFRIC 23 Uncertainty over Income Tax Treatments	The Group has adopted IFRIC 23 for the first time in the current year. IFRIC 23 sets out how to determine the accounting tax position when there is uncertainty over income tax treatments. The Interpretation requires the Group to: • determine whether uncertain tax positions are assessed separately or as a group; and • assess whether it is probable that a tax authority will accept an uncertain tax treatment used, or proposed to be used, by an entity in its income tax filings: – If yes, the Group should determine its accounting tax position consistently with the tax treatment used or planned to be used in its income tax filings. – If no, the Group should reflect the effect of uncertainty in determining its accounting tax position using either the most likely amount or the expected value method.

2.2. New and revised Standards in issue but not yet effective

At the date of authorisation of these financial statements, the Group has not applied the following new and revised IFRS Standards that have been issued but are not yet effective.

IFRS 17	Insurance Contracts
IFRS 10 and IAS 28 (amendments)	Sale or Contribution of Assets between an Investor and its Associate or Joint Venture
Amendments to IFRS 3	Definition of a business
Amendments to IAS 1 and IAS 8	Definition of material
Conceptual Framework	Amendments to References to the Conceptual Framework in IFRS Standards

The directors do not expect that the adoption of the Standards listed above will have a material impact on the financial statements of the Group in future periods, except as noted below:

The amendments are intended to make the definition of material in IAS 1 easier to understand and are not intended to alter the underlying concept of materiality in IFRS Standards. The concept of 'obscuring' material information with immaterial information has been included as part of the new definition.

The threshold for materiality influencing users has been changed from 'could influence' to 'could reasonably be expected to influence'.

The definition of material in IAS 8 has been replaced by a reference to the definition of material in IAS 1. In addition, the IASB amended other Standards and the Conceptual Framework that contain a definition of material or refer to the term 'material' to ensure consistency.

The amendments are applied prospectively for annual periods beginning on or after 1 January 2020, with earlier application permitted.

Together with the revised Conceptual Framework, which became effective upon publication on 29 March 2018, the IASB has also issued Amendments to References to the Conceptual Framework in IFRS Standards. The document contains amendments to IFRS 2, IFRS 3, IFRS 6, IFRS 14, IAS 1, IAS 8, IAS 34, IAS 37, IAS 38, IFRIC 12, IFRIC 19, IFRIC 20, IFRIC 22, and SIC-32.

Not all amendments, however, update those pronouncements with regard to references to and quotes from the framework so that they refer to the revised Conceptual Framework. Some pronouncements are only updated to indicate which version of the Framework they are referencing to (the IASC Framework adopted by the IASB in 2001, the IASB Framework of 2010, or the new revised Framework of 2018) or to indicate that definitions in the Standard have not been updated with the new definitions developed in the revised Conceptual Framework.

The amendments, where they actually are updates, are effective for annual periods beginning on or after 1 January 2020, with early application permitted.

3. Significant Accounting Policies

3.1. Statement of compliance

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards.

3.2. Basis of preparation

The Directors have, at the time of approving the consolidated financial statements, a reasonable expectation that the Group has adequate resources to continue in operational existence for the foreseeable future. Thus they continue to adopt the going concern basis of accounting in preparing the financial statements.

The consolidated financial statements have been prepared on the historical cost basis except for certain properties and financial instruments that are measured at revalued amounts or fair values at the end of each reporting period, as explained in the accounting policies below.

Historical cost is generally based on the fair value of the consideration given in exchange for goods and services.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group takes into account the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date. Fair value for measurement and/or disclosure purposes in these financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of IFRS 2, leasing transactions that are within the scope of IAS 17, and measurements that have some similarities to fair value but are not fair value, such as realisable value in IAS 2 or value in use in IAS 36.

In addition, for financial reporting purposes, fair value measurements are categorised into Level 1, 2 or 3 based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in its entirety, which are described as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date;
- Level 2 inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly; and
- Level 3 inputs are unobservable inputs for the asset or liability.

Items included in the consolidated financial statements are measured using the currency of the primary economic environment in which the entity operates (‘the functional currency’). The consolidated financial statements are presented in Zambian Kwacha (K).

3.2.1. Basis of consolidation

The consolidated financial statements incorporate the financial statements of the Group and its subsidiaries. Group is achieved where the Group has the power to govern the financial and operating policies of an entity so as to obtain benefits from its activities.

- has power over the investee;
- is exposed, or has rights, to variable returns from its involvement with the investee; and
- Has the ability to use its power to affect its returns.

Consolidation of subsidiaries, begins when the Group obtains control over the subsidiary and ceases when the Group loses control of the investments. Specifically, income and expenses of a subsidiary acquired or disposed of during the year are included in the consolidated statement of profit or loss and other comprehensive income from the date the Group gains control until the date when the Group ceases to control the subsidiary.

Profit or loss and each component of other comprehensive income are attributed to the owners of the Group and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Group and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group’s accounting policies.

All intra-group transactions, balances, income and expenses are eliminated in full on consolidation.

The Group continues to use the equity method when an investment in an associate becomes an investment in a joint venture or an investment in a joint venture becomes an investment in an associate. There is no re-measurement to fair value upon such changes in ownership interests.

When a group entity transacts with an associate or a joint venture of the Group, profits and losses resulting from the transactions with the associate or joint venture are recognised in the Group’s consolidated financial statements only to the extent of interests in the associate or joint venture that are not related to the Group.

3.2.2. Going concern

As at 31 December 2019, the Group’s current liabilities exceeded their current assets by K17, 127 million (2018: K10, 271 million). The consolidated financial statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

The ability of the Group to continue as a going concern is dependent on a number of factors. The most significant of these is that the directors continue to procure funding for the ongoing operations of the Group from the holding company. The Government, through Industrial Development Corporation Zambia Limited, has pledged its continued financial support for the forthcoming financial year, ending 31 December 2020 and confirmed its continued undertaking and ability to provide further financial support to the Group for the foreseeable future, should this be required, enabling it to pay its debts as and when they fall due. The other measures have been listed below.

On the basis of cash flow information prepared by the Directors and after consultation with its shareholders, bankers and lessor, the Directors consider that the Group will continue to operate for the foreseeable future within the available financial resources and the successful implementation of the following measures:

- Domestic tariff increase averaging 113% which is expected to raise additional financing to assist liquidating the current obligations;
- The investment in a 750MW Kafue Gorge Lower Project expected to be completed in 2020 which will increase the generation capacity to over 3000MW;
- Re-negotiation of Bulk Supply Agreements (BSAs) with Bulk Customers.
- Cost control, the most significant being the re-negotiation of the power tariffs with independent power producers.

3.2.3.Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies. A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

“The results and assets and liabilities of associates or joint ventures are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment, or a portion thereof, is classified as held for sale, in which case it is accounted for in accordance with IFRS 5. Under the equity method, an investment in an associate or a joint venture is initially recognised in the consolidated statement of financial position at cost and adjusted thereafter to recognise the Group’s share of the profit or loss and other comprehensive income of the associate or joint venture. When the Group’s share of losses of an associate or a joint venture exceeds the Group’s interest in that associate or joint venture (which includes any long-term interests that, in substance, form part of the Group’s net investment in the associate or joint venture), the Group discontinues recognising its share of further losses. Additional losses are recognised only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate or joint venture.

An investment in an associate or a joint venture is accounted for using the equity method from the date on which the investee becomes an associate or a joint venture. On acquisition of the investment in an associate or a joint venture, any excess of the cost of the investment over the Group’s share of the net fair value of the identifiable assets and liabilities of the investee is recognised as goodwill, which is included within the carrying amount of the investment. Any excess of the Group’s share of the net fair value of the identifiable assets and liabilities over the cost of the investment, after reassessment, is recognised immediately in profit or loss in the period in which the investment is acquired.

The requirements of IAS 39 are applied to determine whether it is necessary to recognise any impairment loss with respect to the Group’s investment in an associate or a joint venture. When necessary, the entire carrying amount of the investment (including goodwill) is tested for impairment in accordance with IAS 36 Impairment of Assets as a single asset by comparing its recoverable amount (higher of value in use and fair value less costs of disposal) with its carrying amount, Any impairment loss recognised forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognised in accordance with IAS 36 to the extent that the recoverable amount of the investment subsequently increases.

The Group discontinues the use of the equity method from the date when the investment ceases to be an associate or a joint venture, or when the investment is classified as held for sale. When the Group retains an interest in the former associate or joint venture and the retained interest is a financial asset, the Group measures the retained interest at fair value at that date and the fair value is regarded as its fair value on initial recognition in accordance with IAS 39. The difference between the carrying amount of the associate or joint venture at the date the equity method was discontinued, and the fair value of any retained interest and any proceeds from disposing of a part interest in the associate or joint venture is included in the determination of the gain or loss on disposal of the associate or joint venture. In addition, the Group accounts for all amounts previously recognised in other comprehensive income in relation to that associate or joint venture on the same basis as would be required if that associate or joint venture had directly disposed of the related assets or liabilities. Therefore, if a gain or loss previously recognised in other comprehensive income by that associate or joint venture would be reclassified to profit or loss on the disposal of the related assets or liabilities, the Group reclassifies the gain or loss from equity to profit or loss (as a reclassification adjustment) when the equity method is discontinued.

3.3. Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable for the sale/provision of goods and services in the ordinary course of the Group’s activities. Revenue is shown net of value-added tax (VAT), excise duties, discounts and rebates.

Revenue arises mainly from the distribution and supply of electricity to customers being Mines, exports, domestic and commercial customers.

To determine whether to recognise revenue, the Group follows a 5-step process:

1. Identifying the contract with a customer;

2. Identifying the performance obligations;

3. Determining the transaction price;

4. Allocating the transaction price to the performance obligations; and

5. Recognising revenue when/as performance obligation(s) are satisfied.”

The Group enters into transactions involving a range of the Group’s products and services. These include wheeling of electricity, supply of electricity.

In all cases, the total transaction price for a contract is allocated amongst the various performance obligations based on their relative stand-alone selling prices. The transaction price for a contract excludes any amounts collected on behalf of third parties.

Revenue is recognised either at a point in time or over time, when (or as) the Group satisfies performance obligations by transferring the promised goods or services to its customers.

The Group recognises contract liabilities for consideration received in respect of unsatisfied performance obligations and reports these amounts as customer financed long term payables in the statement of financial position. Similarly, if the Group satisfies a performance obligation before it receives the consideration, the Group recognises either a contract asset or a receivable in its statement of financial position, depending on whether something other than the passage of time is required before the consideration is due.

Sale of electricity

Revenue from the sale of electricity for an agreed tariff is recognised when or as the Group transfers electricity to the customer. Invoices for goods or services transferred are due upon receipt by the customer. Prepaid Sales are recognised at the point when the electricity tokens are issued to the customers.

For stand-alone sales of energy and capacity that are neither customised by the Group nor subject to significant integration services, control transfers at the point in time that the customer takes undisputed delivery of the goods. When such items are either customised or sold together with significant integration, they represent a single combined performance obligation over which control is considered to transfer over time. This is because the combined product is unique to each customer (has no alternative use) and the Group has an enforceable right to payment for the power delivered to date.

The sale of energy to customers in the foreign countries and Zambia bought from utilities in the SAPP is known as power trading.

3.4. Interest income

Interest revenue is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount.

3.5. Rental income

Rental income from operating leases is recognised on a straight line basis over the term of the relevant lease.

3.6. Fibrecom income

Fibre income is recognised on the accrual basis in accordance with the substance of the agreement. Connection fees are recognised on the date of activation of the service. Access charges are recognised in the period to which it relates.

3.7. Inventories

All Inventories are stated at the lower of cost and net realisable value. Cost is calculated on a weighted average basis and includes all expenditure incurred in bringing the inventories to their present location and condition. Net realisable value is the price at which inventory can be realised in the normal course of business and takes into account all directly related costs to be incurred in marketing, selling and distribution. Provision is made for obsolete, slow moving and defective inventories.

3.8. Foreign currencies

In preparing the consolidated financial statements of the entity, transactions in currencies other than the entity's functional currency (foreign currencies) are recognised at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences on monetary items are recognised in profit or loss in the period in which they arise except for exchange differences:

- on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings; and
- arising on foreign currency transactions are posted to the profit and loss in the period they arise; and

3.9. Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalisation. All other borrowing costs are recognised in profit or loss in the period in which they are incurred.

All other borrowing costs are recognised in profit or loss in the financial period in which they are incurred.

3.10. Capital grants and contributions

Capital grants are not recognised until there is reasonable assurance that the Group will comply with the conditions attached to them and that the grants will be received.

Capital grants are recognised in profit or loss on a systematic basis over the periods in which the Group recognises as expenses the related costs for which the grants are intended to compensate. Specifically, government grants whose primary condition is that the Group should purchase, construct or otherwise acquire non-current assets are recognised as deferred revenue in the statement of financial position and transferred to profit or loss on a systematic and rational basis over the useful lives of the related assets.

Capital contributions represent money received from electricity consumers towards the capital cost of connections. Capital contributions are deferred and credited to profit or loss in equal annual instalments over the expected useful lives of the related assets.

3.11. Taxation

Income tax expense represents the sum of the tax currently payable and deferred tax.

(i) Current tax

The tax currently payable is based on taxable profit for the financial period. Taxable profit differs from profit as reported in profit or loss because of items of income or expense that are taxable or deductible in other financial periods and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

(ii) Deferred tax

Deferred tax is recognised on differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognised for all taxable temporary differences. Deferred tax assets are generally recognised for all deductible temporary differences to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilised.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realised, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same taxation authority and the Group intends to settle its current tax assets and liabilities on a net basis.

(iii) Current and deferred tax for the financial period

Current and deferred tax are recognised in profit or loss, except when they relate to items that are recognised in other comprehensive income or directly in equity, in which case, the current and deferred tax are also recognised in profit or loss or directly in equity respectively.

3.12. Property, plant and equipment

Property, plant and equipment are stated in the statement of consolidated financial position at their cost or revalued amounts, being the fair value at the date of revaluation, less any subsequent accumulated depreciation and subsequent impairment losses.

Depreciation is charged to write off the cost or revalued amounts of property, plant and equipment over their estimated useful lives, on a straight line basis, over the following number of years:

Generation, Transmission and Distribution Systems:	
Dams, tunnels, power houses and other civil structures	60 years
Generators, Turbines, Transformers and Towers	40 years
Transmission and distribution systems	25 - 50 years
Other assets:	
Buildings - Roads, Workshops, Office and Houses	30 - 50 years
Furniture, Vehicles and IT	3 - 15 years
Capital work in progress is not depreciated.	

Depreciation is recognised so as to write off the cost or revalued amounts of assets less their residual values over their useful lives, using the straight-line method. The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

Properties in the course of construction for production, supply or administrative purposes are carried at cost, less any recognised impairment loss. Cost includes professional fees and, for qualifying assets, borrowing costs capitalised in accordance with the Group's accounting policy. Such properties are classified to the appropriate categories of property and equipment when completed and ready for intended use. Depreciation of these assets, on the same basis as other property assets, commences when the assets are ready for their intended use.

Management has estimated the residual values of the property, plant and equipment at 31 December 2017 to be insignificant and for purpose of the financial statements have been assigned a nil value.

Repairs and maintenance expenses are charged to profit or loss during the period in which they are incurred. The cost of major renovations is included in the carrying amount of the asset when it is probable that future economic benefits in excess of the originally assessed standard of performance of the existing asset will flow to the Group.

An item of property and equipment is derecognised upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on the disposal or retirement of an item of property, plant and equipment is determined as the difference between the sales proceeds and the carrying amount of the asset and is recognised in profit or loss.

The surplus arising on revaluation of tangible assets is credited to a non-distributable reserve. Decreases that offset previous revaluations of the same asset are charged against the revaluation reserve. All other decreases are charged to the statement of comprehensive income. Each year the difference between depreciation based on the revalued carrying amount of the asset (the depreciation charged to the statement of comprehensive income) and depreciation based on the asset's original cost is transferred from the revaluation reserve to revenue reserves. On disposal of revalued assets, amounts in the revaluation reserve relating to that asset are transferred to revenue reserves.

Assets held under right-of-use are depreciated over their useful lives on the same basis as owned assets. However, when there is no reasonable certainty that ownership will be obtained by the end of the lease term, assets are depreciated over the shorter of the lease term and their useful lives.

3.13. Leases

At inception of a contract, the Group assesses a contract as, or containing, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group assesses whether the contract involves the use of an identified asset, the Group has the right to obtain substantially all of the economic benefits from use of the asset throughout the period of use; and the Group has the right to direct the use of the asset.

3.13.1. Leases

On initial application of IFRS 16, the Group recognised a lease liability measured at the present value of all the remaining lease payments, discounted using the lessee's incremental borrowing rate at 1 January 2019 whereas the Group has elected to measure right-of-use asset at its carrying amount as if IFRS 16 had been applied since the lease commencement date, but discounted using the lessee's incremental borrowing rate at 1 January 2019. The Group has elected not to recognise a lease liability and a right-of-use asset for leases for which the lease term ends within twelve months of 1 January 2019 and has accounted for these leases as short-term leases.

For new lease contracts, the Group recognises a right-of-use asset and a corresponding lease liability with respect to all lease agreements in which it is the lessee in the statement of financial position. The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate. Lease liabilities include the net present value of fixed payments (including in-substance fixed payments), variable lease payments that are based on consumer price index ('CPI'), the exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate.

Subsequently, the lease liability is measured at amortised cost using the effective interest method. It is re-measured when there is a change in future lease payments including due to changes in CPI or if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or when the lease contract is modified and the lease modification is not accounted for as a separate lease. The corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the related right-of-use asset has been reduced to zero.

Right-of-use assets are measured at cost comprising the amount of the initial measurement of lease liability, any lease payments made at or before the commencement date less any lease incentives received, any initial direct costs, and restoration costs.

Subsequent to initial recognition, right-of-use asset are stated at cost less accumulated depreciation and any impairment losses and adjusted for certain re-measurements of the lease liability. Depreciation is computed using the straight-line method from the commencement date to the end of the useful life of the underlying asset or the end of the lease term, whichever is shorter. The estimated useful lives of right-of-use assets are determined on the same basis as those of the underlying property and equipment.

In the statement of financial position, the right-of-use assets and lease liabilities are presented separately.

When a contract includes lease and non-lease components, the Group allocates the consideration in the contract on the basis of the relative stand-alone prices of each lease component and the aggregate stand-alone price of the non-lease components.

The Group has elected not to recognise right-of-use assets and lease liabilities for short term leases of machinery that have a lease term of 12 months or less and leases of low value assets. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

3.13.2. Group as a lessor

Whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee, the contract is classified as a finance lease. All other leases are classified as operating leases.

Amounts due from lessees under a finance lease are recognised as receivables at an amount equal to the net investment in the leased assets. Finance lease income is allocated to the periods so as to reflect a constant periodic rate of return on the net investment outstanding in respect of the finance lease.

Rental income from operating leases is recognised on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognised on a straight line basis over the lease term.

When a contract includes lease and non-lease components, the Group applies IFRS 15 to allocate the consideration under the contract to each component.

3.14. Intangible assets

Intangible assets with finite useful lives that are acquired separately are carried at cost less accumulated amortisation and accumulated impairment losses. Amortisation is recognised on a straight-line basis over their estimated useful live. The estimated useful life and amortisation method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for on a prospective basis.

An intangible asset is de-recognised on disposal, or when no future economic benefits are expected from use or disposal. Gains or losses arising from de-recognition of an intangible asset, measured as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognised in in profit or loss when the asset is de-recognised.

3.15. Impairment of tangible and intangible assets

At the end of each reporting period the Group reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where it is not possible to estimate the recoverable amount of an individual asset the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Recoverable amount is the higher of fair value less costs to sell and value in use. In assessing value in use the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset (or cash-generating unit) is estimated to be less than its carrying amount the carrying amount of the asset (cash-generating unit) is reduced to its recoverable amount. An impairment loss is recognised immediately in profit or loss unless the relevant asset is carried at a revalued amount, in which case the impairment loss is treated as a revaluation decrease.

When an impairment loss subsequently reverses, the carrying amount of the asset (cash-generating unit) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (cash-generating unit) in prior financial periods. A reversal of an impairment loss is recognised immediately in profit or loss unless the relevant asset is carried at a revalued amount, in which case the reversal of the impairment loss is treated as a revaluation increase.

3.16. Financial instruments

Financial assets and financial liabilities are recognised in the Group's statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognised immediately in profit or loss.

Financial assets

All regular way purchases or sales of financial assets are recognised and derecognised on a trade date basis. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the marketplace.

All recognised financial assets are measured subsequently in their entirety at either amortised cost or fair value, depending on the classification of the financial assets.

Classification of financial assets

Debt instruments that meet the following conditions are measured subsequently at amortised cost:

- the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Debt instruments that meet the following conditions are measured subsequently at fair value through other comprehensive income (FVTOCI):

- the financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling the financial assets; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Despite the foregoing, the Group may make the following irrevocable election/designation at initial recognition of a financial asset:

- the Group may irrevocably elect to present subsequent changes in fair value of an equity investment in other comprehensive income if certain criteria are met; and
- the Group may irrevocably designate a debt investment that meets the amortised cost or FVTOCI criteria as measured at FVTPL if doing so eliminates or significantly reduces an accounting mismatch.

(i) Amortised cost and effective interest method

The effective interest method is a method of calculating the amortised cost of a debt instrument and of allocating interest income over the relevant period.

For financial assets other than purchased or originated credit-impaired financial assets (i.e. assets that are credit-impaired on initial recognition), the effective interest rate is the rate that exactly discounts estimated future cash receipts (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) excluding expected credit losses, through the expected life of the debt instrument, or, where appropriate, a shorter period, to the gross carrying amount of the debt instrument on initial recognition. For purchased or originated credit-impaired financial assets, a credit-adjusted effective interest rate is calculated by discounting the estimated future cash flows, including expected credit losses, to the amortised cost of the debt instrument on initial recognition.

The amortised cost of a financial asset is the amount at which the financial asset is measured at initial recognition minus the principal repayments, plus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. The gross carrying amount of a financial asset is the amortised cost of a financial asset before adjusting for any loss allowance.

The amortised cost of a financial asset is the amount at which the financial asset is measured at initial recognition minus the principal repayments, plus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. The gross carrying amount of a financial asset is the amortised cost of a financial asset before adjusting for any loss allowance.

For purchased or originated credit-impaired financial assets, the Group recognises interest income by applying the credit-adjusted effective interest rate to the amortised cost of the financial asset from initial recognition.

The calculation does not revert to the gross basis even if the credit risk of the financial asset subsequently improves so that the financial asset is no longer credit-impaired. Interest income is recognised in profit or loss.

Foreign exchange gains and losses

The carrying amount of financial assets that are denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of each reporting period. Specifically;

- for financial assets measured at amortised cost that are not part of a designated hedging relationship, exchange differences are recognised in profit or loss:
- for debt instruments measured at FVTOCI that are not part of a designated hedging relationship, exchange differences on the amortised cost of the debt instrument are recognised in profit or loss. Other exchange differences are recognised in other comprehensive income in the investments revaluation reserve;
- for equity instruments measured at FVTOCI, exchange differences are recognised in other comprehensive income in

the investments revaluation reserve.

Impairment of financial assets

The Group recognises a loss allowance for expected credit losses on investments in debt instruments that are measured at amortised cost or at FVTOCI, lease receivables, trade receivables and contract assets, as well as on financial guarantee contracts. The amount of expected credit losses is updated at each reporting date to reflect changes in credit risk since initial recognition of the respective financial instrument.

The Group always recognises lifetime ECL for trade receivables, contract assets and lease receivables. The expected credit losses on these financial assets are estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the debtors, general economic conditions and an assessment of both the current as well as the forecast direction of conditions at the reporting date, including time value of money where appropriate.

For all other financial instruments, the Group recognises lifetime ECL when there has been a significant increase in credit risk since initial recognition. However, if the credit risk on the financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-month ECL.

Lifetime ECL represents the expected credit losses that will result from all possible default events over the expected life of a financial instrument. In contrast, 12-month ECL represents the portion of lifetime ECL that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

(i) Significant increase in credit risk

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition, the Group compares the risk of a default occurring on the financial instrument at the reporting date with the risk of a default occurring on the financial instrument at the date of initial recognition. In making this assessment, the Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort. Forward-looking information considered includes the future prospects of the industries in which the Group's debtors operate, obtained from economic expert reports, financial analysts, governmental bodies, relevant think-tanks and other similar organisations, as well as consideration of various external sources of actual and forecast economic information that relate to the Group's core operations.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- an actual or expected significant deterioration in the financial instrument's external (if available) or internal credit rating;
- significant deterioration in external market indicators of credit risk for a particular financial instrument, e.g. a significant increase in the credit spread, the credit default swap prices for the debtor, or the length of time or the extent to which the fair value of a financial asset has been less than its amortised cost;
- existing or forecast adverse changes in business, financial or economic conditions that are expected to cause a significant decrease in the debtor's ability to meet its debt obligations;
- an actual or expected significant deterioration in the operating results of the debtor;
- significant increases in credit risk on other financial instruments of the same debtor;
- an actual or expected significant adverse change in the regulatory, economic, or technological environment of the debtor that results in a significant decrease in the debtor's ability to meet its debt obligation

Irrespective of the outcome of the above assessment, the Group presumes that the credit risk on a financial asset has increased significantly since initial recognition when contractual payments are more than 30 days past due, unless the Group has reasonable and supportable information that demonstrates otherwise.

Despite the foregoing, the Group assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is determined to have low credit risk at the reporting date. A financial instrument is determined to have low credit risk if:

(1) The financial instrument has a low risk of default,

(2) The debtor has a strong capacity to meet its contractual cash flow obligations in the near term, and

(3) Adverse changes in economic and business conditions in the longer term may, but will not necessarily, reduce the ability of the borrower to fulfil its contractual cash flow obligations.

(ii) Definition of default

The Group considers the following as constituting an event of default for internal credit risk management purposes as historical experience indicates that financial assets that meet either of the following criteria are generally not recoverable:

- When there is a breach of financial covenants by the debtor; or
- Information developed internally or obtained from external sources indicates that the debtor is unlikely to pay its creditors, including the Group, in full (without taking into account any collateral held by the Group.

Irrespective of the above analysis, the Group considers that default has occurred when a financial asset is more than 90 days past due unless the Group has reasonable and supportable information to demonstrate that a more lagging default criterion is more appropriate.

(iii) Credit-impaired financial assets

A financial asset is credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred. Evidence that a financial asset is credit-impaired includes observable data about the following events:

(a) Significant financial difficulty of the issuer or the borrower;

(b) A breach of contract, such as a default or past due event;

(c) the lender(s) of the borrower, for economic or contractual reasons relating to the borrower's financial difficulty, having granted to the borrower a concession(s) that the lender(s) would not otherwise consider;

(d) It is becoming probable that the borrower will enter bankruptcy or other financial reorganisation; or

(e) The disappearance of an active market for that financial asset because of financial difficulties.

(iv) Writeoff policy

The Group writes off a financial asset when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery, e.g. when the debtor has been placed under liquidation or has entered into bankruptcy proceedings, or in the case of trade receivables, when the amounts are over law of limitation period past due, whichever occurs sooner. Financial assets written off may still be subject to enforcement activities under the Group's recovery procedures, taking into account legal advice where appropriate. Any recoveries made are recognised in profit or loss.

(v) Measurement and recognition of expected credit losses

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss if there is a default) and the exposure at default. The assessment of the probability of default and loss given default is based on historical data adjusted by forward-looking information as described above.

As for the exposure at default, for financial assets, this is represented by the assets' gross carrying amount at the reporting date; for financial guarantee contracts, the exposure includes the amount drawn down as at the reporting date, together with any additional amounts expected to be drawn down in the future by default date determined based on historical trend, the Group's understanding of the specific future financing needs of the debtors, and other relevant forward-looking information.

For financial assets, the expected credit loss is estimated as the difference between all contractual cash flows that are due to the Group in accordance with the contract and all the cash flows that the Group expects to receive, discounted at the original effective interest rate.

The Group recognises an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account.

De-recognition of financial assets

The Group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognises its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognise the financial asset and also recognises a collateralised borrowing for the proceeds received.

On de-recognition of a financial asset measured at amortised cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognised in profit or loss. In addition, on de-recognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on de-recognition of an investment in equity instrument which the Group has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

Financial liabilities and equity

Classification as debt or equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and an equity instrument.

Equity instruments

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recognised at the proceeds received, net of direct issue costs.

Repurchase of the Group's own equity instruments is recognised and deducted directly in equity. No gain or loss is recognised in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

Financial liabilities

All financial liabilities are measured subsequently at amortised cost using the effective interest method or at FVTPL.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) through the expected life of the financial liability, or (where appropriate) a shorter period, to the amortised cost of a financial liability.

Foreign exchange gains and losses

For financial liabilities that are denominated in a foreign currency and are measured at amortised cost at the end of each reporting period, the foreign exchange gains and losses are determined based on the amortised cost of the instruments. These foreign exchange gains and losses are recognised in the 'other gains and losses' line item in profit or loss.

The fair value of financial liabilities denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of the reporting period.

De-recognition of financial liabilities

The Group derecognises financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit or loss.

3.17. Provisions

Provisions are recognised when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the Group will be required to settle the obligation, and which a reliable estimate can be made of the amount of the obligation.

The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at the statement of comprehensive income date, taking into account the risks and uncertainties surrounding the obligation. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, the receivable is recognised as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably.

3.18. Retirement benefits and other employee benefits

(i) Defined benefit plan

For defined benefit retirement plans, the cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at the end of each annual reporting period. Re-measurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets (excluding interest), is reflected immediately in the statement of financial position with a charge or credit recognised in other comprehensive income in the period in which they occur. Re-measurement recognised in other comprehensive income is reflected immediately in accumulated funds and will not be reclassified to income or expenditure. Past service cost is recognised in income or expenditure in the period of a plan amendment. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset. Defined benefit costs are categorised as follows:

- Service cost (including current service cost, past service cost, as well as gains and losses on curtailments and settlements).
- Net interest expense or income.
- Re-measurement.

The retirement benefit obligation recognised in the statement of financial position represents the actual deficit or surplus in the Group's defined benefit plans. Any surplus resulting from this calculation is limited to the present value of any economic benefits available in the form of refunds from the plans or reductions in future contributions to the plans.

(ii) Defined contribution plan

The Group and all its employees contribute to the National Pension Scheme, which is a defined contribution scheme. A defined contribution plan is a retirement benefit plan under which the Group pays fixed contributions into a separate entity. The Group has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods.

(iii) Termination benefits

Employees on non-fixed term contract of employment (commonly known as "Permanent and Pensionable" employment) are entitled also to long service termination benefits. The benefits are computed in accordance with accrued service period and the terminal pay. Provision is raised in profit or loss on a monthly basis.

A liability for a termination benefit is recognised at the earlier of when the entity can no longer withdraw the offer of the termination benefit and when the entity recognises any related restructuring costs.

(iv) Other entitlements

Employee entitlements to annual leave and contract gratuity are recognised when they accrue to employees. Accrued leave pay and gratuity is accounted for in income or expenditure as it arises.

4. Critical accounting judgements and key sources of estimation uncertainty

The preparation of the consolidated financial statements in conformity with the Group's accounting policies which are described in note 3, the Directors are required to make judgements, estimates and assumptions about the carrying amount of assets and liabilities that are readily apparent from other sources. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Actual results may differ from these estimates.

Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

4.1. Critical judgments in applying accounting policies

a) Income taxes

There are many transactions and calculations for which the ultimate tax determination is uncertain during the ordinary course of business. The Group recognises liabilities for anticipated tax based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact on the income tax and deferred tax provisions in the period in which such determination is made.

b) Calculation of loss allowance

When measuring ECL the Group uses reasonable and supportable forward looking information, which is based on assumptions for the future movement of different economic drivers and how these drivers will affect each other.

Loss given default is an estimate of the loss arising on default. It is based on the difference between the contractual cash flows due and those that the lender would expect to receive, taking into account cash flows from collateral and integral credit enhancements.

Probability of default constitutes a key input in measuring ECL. Probability of default is an estimate of the likelihood of default over a given time horizon, the calculation of which includes historical data, assumptions and expectations of future conditions.

(c) Significant increase in credit risk

As explained in note 3, ECL are measured as an allowance equal to 12-month ECL for stage 1 assets, or lifetime ECL for stage 2 or stage 3 assets. An asset moves to stage 2 when its credit risk has increased significantly since initial recognition. IFRS 9 does not define what constitutes a significant increase in credit risk. In assessing whether the credit risk of an asset has significantly increased the Group takes into account qualitative and quantitative reasonable and supportable forward looking information.

(d) Provision for obsolete inventory

The Group reviews is inventory to assess loss on account of obsolescence on a regular basis. In determining whether provision for obsolescence should be recorded in profit or loss, the Group makes judgements as to whether there is any observable data indicating that there is any future saleability of the product and the net realizable value for such product. Accordingly, provision for obsolescence is made where the net realizable value is less than cost based on best estimates by the management, ageing of inventories and historical movement of the inventory.

(e) Capitalisation of borrowing costs

The Group capitalises borrowing costs directly attributable to the acquisition, construction or production of qualifying assets. Capitalisation of the borrowing costs relating to construction is suspended when the development is delayed as management reconsiders its detailed plans. Capitalisation of borrowing costs is recommenced at the resumption of the activities necessary to prepare the asset for its intended use.

f) Judgement in identifying whether a contract includes a lease

The directors of the Group assess whether or not the Group has contracted for the rights to use the identified assets and whether the contract conveys the right to control the use of the identified assets for a period of time in exchange for consideration. The directors concluded that the Group has contracted for the rights to use the identified assets and that the contract conveys the right to control the use of the identified assets for a period of time in exchange for consideration, therefore the contracts do a contain lease.

4.2. Key sources of estimation uncertainty

The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial period. The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial period.

(a) Estimated useful lives and residual values of property, plant and equipment

The Group's management determines the estimated useful lives and related depreciation charge for its items of property, plant and equipment on an annual basis. The Group has carried out a review of the residual values and useful lives of property, plant and equipment as at 31 December 2017 and the management has not highlighted any requirement for an adjustment to the residual lives and remaining useful lives if the assets for the current or future periods.

(b) Contingencies

Appropriate recognition and disclosure of contingent liabilities is made regarding litigation, tax matters and environmental issues. Accounting for contingencies requires significant judgement by management regarding the estimated probabilities and ranges of exposure to potential loss. The evaluation of these contingencies is performed by various specialists inside and outside of the Group. The Group's assessment of the Group's exposure to contingencies could change as new developments occur or more information.

(c) Impairment of investments in joint ventures and associates

Investments in joint ventures and associates are reviewed for impairment at the reporting date. Determining whether an investment balance is impaired requires an estimation of the value in use of the joint venture or associate. The value in use calculation requires an estimate to be made of the timing and amount of future cash flows expected to arise from the joint venture or associate and the application of a suitable discount rate in order to calculate the present value. The discount rates used are based on the Group's weighted average cost of capital adjusted to reflect the specific economic environment of the joint venture or associate.

(d) Actuarial valuation assumptions

The Group has a defined benefit pension scheme, the valuation of the net assets or liabilities involves accounting estimates arising from actuarial valuation based on assumptions. Actuarial assumptions made in determining the present obligation of retirement benefits.

(e) Lease IFRS 16

In determining the right-of-use assets and lease liabilities a number of assumptions were made. The key assumptions include determining the Incremental Borrowing Rate which was used as discounting factor to determine the lease liability and interest expense.

5. Revenue

	2019	2018
Arose from customers in the following sections:		
Mining	6,203,138	5,324,388
Residential	1,386,252	1,596,638
Industrial and agricultural	1,277,497	1,239,429
Exports	1,150,969	1,063,366
Commercial (retail outlets)	308,538	311,114
	10,326,394	9,534,935

6. Cost of sales

Local purchases of power	4,164,568	3,609,806
Direct labour costs	875,945	854,873
Maintenance costs	341,223	319,948
Emergency power imports (financed by Government)	-	307,232
Local wheeling charges	110,396	94,418
Generation water usage & fuel costs	89,865	80,027
Power imports (internally financed)	178,180	10,050
Export wheeling charges	1,825	9,276
	5,762,002	5,285,630

The Group continued to buy power from Independent Power Producers (IPPs) to supplement the internal power generation, which was reduced due to low water levels. The cost of IPPs was partially financed by the Government of the Republic of Zambia due to higher tariff of about US$11/Kwh, compared to the average selling price of US$7/Kwh. The increase in the cost of power purchases was attributed to the depreciation of the Kwacha against US Dollar. The IPPs include Maamba Collieries Limited, Ndola Energy Company Limited and Itezhi Tezhi Power Corporation Limited whose average cost of power exceeds ZESCO's selling price to customers. During the year total disbursements from the Government of the Republic of Zambia was K740 million (2018: K618 million) towards power purchases.

7. Other operating income

	2019	2018
Sundry income	1,267,204	26,280
Amortisation of capital grants and contributions (Note 24)	174,380	151,425
Fibrecom income	92,866	89,215
Interest on late payments	51,088	259,962
Interest income	13,361	10,027
Wheeling income	11,145	22,585
Rental income	2,182	1,981
	1,612,226	561,475

8. Other losses

Net exchange losses	(2,341,584)	(1,652,336)
(Loss) gain on disposal of property, plant and equipment	(1,138)	244
	(2,342,722)	(1,652,092)

The Zambian Kwacha appreciated against the US Dollar and other major convertible foreign currencies during the year.

The impact of the appreciation of the Zambian Kwacha during the year is that the Group recorded significant exchange gains on its foreign currency denominated liabilities.

The table below illustrates the movements in the US Dollar exchange rates during the period:

	Mid – market exchange rate	Mid – market exchange rate	Average depreciation
Currency	as at 1 January 2018	as at 31 December 2018	during the year
US Dollar (1 US$ =)	K11.9339	K14.125	18%

9. Other expenses

	2019	2018
Provision for bad debts	2,337,062	1,315,049
Other expenses	1,758,412	1,004,599
	4,095,474	2,319,648

For the year ended 31 December 2019

10. Finance costs

	2019	2018
These comprise the following:		
Interest paid on borrowings	610,909	541,850
Interest paid on overdraft	13,902	12,885
Interest on lease liabilities	5,046	-
	629,857	554,735

11. Loss before tax

Loss before tax is stated after crediting:		
Amortisation of capital grants and capital contributions	174,380	151,425
Interest income	13,361	10,027
Gain on disposal of property, plant and equipment	-	244
and after charging:		
Net exchange losses (note 8)	2,341,584	1,652,336
Employee benefits	2,525,299	1,472,773
Depreciation and amortisation (note 14 and 15)	1,940,433	1,974,751
Finance costs (Note 10)	629,857	554,735
Pension costs	1,395,314	320,333
Directors' fees		
- in connection with the management	19,619	13,860
- as Directors	4,903	4,486
Operating lease rental	-	11,000
Donations	5,844	5,816
Loss on disposal of property, plant and equipment	1,138	-

12. Current Tax

Income tax charge at 35%		
Deferred taxation (note 13)	(837,987)	(4,199,193)
Current tax	472,080	130,845
Income tax credit	(365,907)	(4,068,348)

Subject to agreement with the Zambia Revenue Authority, the Group had estimated tax losses of K23,407 million (2018: K24,366 million) which are available for carry forward for a period of 10 years from the year in which they arose and for set off against future taxable profits. The cumulative tax losses comprise:

2018/2019 losses available until 2021	(23,407,270)	24,365,979

Statement of tax losses

Tax year	Tax year expiry	Tax loss b/f amount	Utilised	Expired	Tax loss c/f
2013	2023	(305,748)	-	-	(305,748)
2014	2024	(277,648)	-	-	(277,648)
2015	2025	(1,849,669)	-	-	(1,849,669)
2016	2026	(3,084,293)	-	-	(3,084,293)
2017	2027	(9,249,287)	-	-	(9,249,287)
2018	2028	(8,805,914)	-	-	(8,805,914)
2019	2029	165,289	-	-	165,289
		23,407,270)			(23,407,270)

	2019	**2018**
Included under current liabilities:		
Arising during the year	472,080	130,845
Payable in respect of prior year	1,317,201	1,226,145
	1,789,281	1,356,990
Paid during the year	(48,859)	(39,789)
Payable at end of year	1,740,422	1,317,201
Reconciliation of tax charge		
The total income tax expense for the year can be reconciled to the accounting profit as follows:		
Loss before tax	(5,938,549)	(2,722,381)
Applicable tax rate of 35%	(2,078,492)	(952,833)
Permanent differences:		
- Capital exchange gains	(367,272)	(536,981)
- Other disallowable items	1,766,062	5,230,100
- *Tax rate adjustment	740,479	328,063
	60,776	4,068,348

*The subsidiary, Kariba North Bank Extension Power Corporation Limited qualifies for the general investments incentives under the Zambia Development Agency Act No.11 of 2006 (the "Act"). The Act offers a wide range of incentives in the form of allowances, exemptions and concessions for companies. The Act provides for investment thresholds that investors have to meet to qualify for fiscal and non-fiscal incentives.

The tax rate adjustment of K740,479,000 (2018: K328,063,000) relates to the effects of the tax payable/receivable in the future periods, as the subsidiary will be subject to tax at different rates in the future periods based on the investment incentives under the Zambia Development Agency (ZDA).

13. Deferred tax

	2019	2018
At beginning of year	1,556,231	5,992,046
Charge to equity	(5,413)	(236,622)
Credit to profit or loss for the year (Note 12)	(837,987)	(4,199,193)
At end of year	712,831	1,556,231

The following are the major deferred tax liabilities (assets) recognised by the Group and their movements in the year:

	Net unutilised tax losses	Accelerated capital allowances	Revaluation surplus	Provisions and other	Total
2018					
"At beginning of year restated"	(4,175,676)	3,214,917	9,141,165	(2,188,362)	5,992,044
"(Credit) charge to profit or loss"	(4,066,621)	(614,301)	(74,206)	555,937	(4,199,191)
Charge to equity	-	-	(236,622)	-	(236,622)
At end of year	(8,242,297)	2,600,616	8,830,337	(1,632,425)	1,556,231
2019					
At beginning of year	(8,242,297)	2,600,616	8,830,337	(1,632,425)	1,556,231
"(Credit) charge to profit or loss"	(1,284,334)	1,891,174	-	(1,444,827)	(837,987)
Charge to equity	-	-	(5,413)	-	(5,413)
At end of year	(9,526,631)	4,491,790	8,824,924	(3,077,252)	712,831
Total deferred tax balances recorded on the statement of financial position:					
Deferred tax asset					429,199
Deferred tax liability					(1,142,030)
As at year end					(712,831)

14. Property, plant and equipment

	Generation systems	Transmission systems	Distribution systems	Civil works & Buildings	Vehicle, furniture & fittings & equipment	Capital work in progress	Total
Cost or valuation							
At 1 January 2018	5,031,965	25,008,849	-	12,414,826	7,555	7,740,730	50,203,925
Additions	4,216	-	-	5,251	91,905	13,454,156	13,555,528
Depreciation Capitalised	-	-	-	-	-	425	425
Transfers	17,836	144,939	165,101	1,989	2,871	(332,736)	-
*Realignments	(150,867)	(13,634,295)	12,755,933	(3,042,758)	4,071,987	-	-
**Adjustments	-	(109,197)	(156,888)	-	-	(2,271,268)	(2,537,353)
Disposals	-	-	-	-	(5,093)	-	(5,093)
At 31 December 2018	4,903,150	11,410,296	12,764,146	9,379,308	4,169,225	18,591,307	61,217,432
Additions	6,948	49	58	1,101	61,668	10,405,289	10,475,113
Revaluation of assets	85,384			(24,877)			60,507
Depreciation Capitalised	-	-	-	-	-	609	609
Disposals	-	-	-	-	(3,602)	-	(3,602)
REA Transfers In	-	-	47,409	-	-	-	47,409
Transfers from Capital Works In Progress	-	831,455	103,921	198,971	104,490	(1,238,837)	-
Reclassification to intangible assets		(7,190)	-	-	-	-	(7,190)
*Adjustments on assets	-	-	-	-	-	(579,005)	(579,005)
At 31 December 2019	4,995,482	12,234,610	12,915,534	9,554,503	4,331,781	27,179,363	71,211,273
DEPRECIATION							
At 1 January 2018	131,073	-	-	103,598	284,096	-	518,767
Charge for year	202,251	552,588	664,535	329,246	218,258	-	1,966,878
Eliminated on disposal	-	-	-	-	(4,393)	-	(4,393)
At 31 December 2018	333,324	552,588	664,535	432,844	497,961	-	2,481,252
Charge for year	205,565	573,715	670,202	324,788	157,516	-	1,931,786
Eliminated on revaluation	(164,200)			(127,895)			(292,096)
Eliminated on disposal	-	-	-	-	(1,682)	-	(1,682)
At 31 December 2019	374,689	1,126,303	1,334,737	629,737	653,795	-	4,119,260

	Generation systems	Transmission systems	Distribution systems	Civil works & Buildings	Vehicle, furniture & fittings & equipment	Capital work in progress	Total
CARRYING AMOUNT							
At 31 December 2019	4,620,793	11,108,307	11,580,797	8,924,766	3,677,986	27,179,363	67,092,013
At 31 December 2018	4,569,826	10,857,708	12,099,611	8,946,464	3,671,264	18,591,307	58,736,180

**Adjustments arise from the fixed assets which were captured under revaluation of assets and yet they were still captured under Capital Works in Progress.

*Realignments of balances arise due to the change in classification of fixed assets.

The Group's Civil engineering works, generation plants and transmission and distribution systems and leasehold buildings are stated at their revalued amounts, being their fair value at the date of revaluation, less any subsequent accumulated depreciation. The fair value measurement of the Group's civil engineering works and buildings and generation plants and transmission and distribution systems as at 31 December 2017 were performed by Messrs Multiconsult United Kingdom and Upmarket Property Consultants respectively, independent valuers not related to the Group.

At year end, the subsidiary, Kariba North Bank Extension Power Corporation Limited's directors passed the adjustment to reflect the revaluation that was performed as at 31 December 2017 by Messrs Multiconsult United Kingdom and Upmarket Property Consultants. The net revaluation gain that was recognised amounted to K61 million.

The information below shows the valuation techniques used as well as the significant inputs used

Property, plant and equipment	Valuation technique	Description of valuation technique	Observable inputs
Freehold land and buildings	Market based approach - Direct Comparable Method (DCM) and Depreciated Replacement Cost (DRC)	"Direct Comparable method renders an estimate of value through comparison with other similar available properties which have recently transacted in the vicinity in an attempt to discern the actions of buyers and sellers active in the market place. The current market value is built up from the Land and improvement values of the buildings derived from comparable transactions. Considerations were made with reference to; Location factor, time of sale, accessibility, quality, prevailing economic property trends. The Depreciated Replacement Cost method determines the present market value of the subject property by estimating the present cost of replacing the building(s) by estimating the total amount of accrued depreciation from all causes, namely physical deterioration, functional obsolescence and external obsolescence, subtracting the accrued depreciation from the present replacement costs, estimating the value of minor improvements and adding the site value to the depreciated cost of the building(s).This method was used where there was no market-based evidence of fair value because of the specialised nature of the item of property, plant and equipment and the item is rarely sold, except as part of a continuing business."	Not applicable
Civil engineering works and generation plants (Hydro stations, diesel stations and HV stations)	Depreciated Current Replacement Value (DCRV)	The Depreciated Current Replacement Cost (DRCV) method requires that, for each asset under consideration, a value be obtained for a modern equivalent asset (MEA), that being an asset that can reasonably provide like-for-like benefits of the asset under consideration. The current replacement value (CRV) of electrical and mechanical equipment was established using ZESCO data for recent projects. For the civil work structures, a bill of quantities was prepared covering the major work items for each hydro scheme section (e.g. embankments, power intakes, canals, fore bays, power tunnels, pressure shafts, powerhouses etc.). The DCRV has been calculated in the Asset Register on a linear basis, a minimum value of 10% CRV was allocated if the asset is still in service. A scrap value has also been allocated where it is ZESCO's current practice to sell scrap materials.	Market prices, exchange rates, discounted rate

For the year ended 31 December 2019

Property, plant and equipment	Valuation technique	Description of valuation technique	Observable inputs
Transmission and distribution systems	Depreciated Current Replacement Value (DCRV)	"The DRC method requires that, for each asset under consideration, a value be obtained for a modern equivalent asset (MEA), that being an asset that can reasonably provide like-for-like benefits of the asset under consideration. Transmission line asset prices were obtained from recent ZESCO transmission line projects pricing schedules. An additional 3% on-costs was added to account for the Owner's costs. Line costs were priced per unit length and according to terrain type (flat, hilly and swampy). Distribution equipment pricing data was obtained from recent ZESCO in-house pricing data. Unit installed prices (material and labour) per length of overhead line and underground cable was calculated from these data and a further 100% on-costs were added."	Market prices, exchange rates, discounted rate

Details of the Group's civil engineering works and buildings, generation plants and transmission and distribution systems and information about the fair value hierarchy as at the end of the reporting period are as follows:

	Level 1	Level 2	Level 3	Fair value as at 31 December 2019
Civil Engineering works and buildings	-	-	4,647,095	8,052,175
Generation plants	-	12,796,509	-	12,796,509
Transmission and distribution systems	-	7,682,752	-	7,682,752

	Level 1	Level 2	Level 3	Fair value as at 31 December 2018
Civil Engineering works and buildings	-	-	3,574,271	3,574,271
Generation plants	-	12,099,611	-	12,099,611
Transmission and distribution systems	-	7,787,176	-	7,787,176

There were no transfers between fair value levels during the year.

Had the Group's civil engineering works and buildings, generation plants and transmission and distribution systems been measured on a historical cost basis, their carrying amounts wold have been as follows:

	2019	2018	2017	2016
			496,452	290,819
Civil Engineering works and buildings	1,489,603	375,650	1,162,491	1,319,817
Generation plants	1,542,536	587,301	15,952,824	14,671,213
Transmission and distribution systems	11,552,415	12,377,588	17,611,767	16,281,849

The significant inputs include the estimated construction costs and other ancillary expenditure. A slight increase in the depreciated factor would result in a significant decrease in the fair value of the buildings and civil engineering works, and a slight increase in the estimated construction costs would result in a significant increase in the fair value of the buildings, and vice versa.

In the opinion of the Directors there are no major components of Property, Plant and Equipment which have different useful lives that would require to be depreciated separately and allocated separate residual values.

In accordance with Section 248 of the Companies Act, 2017, the register of Land and Buildings is available for inspection by members and their duly authorised agents at the registered records office of the Group.

Assets Held as Security

There were no assets that were placed as Security for any loan obtained during the year under review.

15. Intangible Asset

	2019	2018
Cost		
At beginning of year	76,505	68,740
Additions	858	7,765
Reclassification of intangible assets from PPE (note 14)	7,190	-
At end of year	84,553	76,505
Accumulated amortisation		
At beginning of year	(7,873)	-
Amortisation expense	(8,647)	(7,873)
Balance at 31 December	(16,520)	(7,873)
Carrying amounts:		
At end of year	68,033	68,632

The following useful lives are used in the calculation of amortisation:

Oracle software	4 years
Business information system	20 years

Significant intangible assets

The intangible assets consist of oracle software and the business information systems.

The Group's intangible assets are stated at their revalued amounts, being their fair value at the date of revaluation, less any subsequent accumulated amortisation. The fair value measurement of the Group's intangible assets as at 31 December 2017 were performed by Messrs Multiconsult United Kingdom, independent valuers not related to the Group.

The information below shows the valuation techniques used as well as the significant inputs used.

Intangible assets	Valuation technique	Description of valuation technique	Observable inputs
Oracle software and other related software	Current Replacement cost	The method determines the amount that ZESCO Limited would have to pay to replace an asset at the present time, according to its current worth of the software on the market.	Not applicable

	Level 1	Level 2	Level 3	Fair value at 31 December 2019
Intangible assets	-	-	84,411	84,411

The fair value measurements for intangible asset have been categorised as Level 3 fair values based on the inputs to the valuation technique used.

There were no transfers between fair value levels during the year.

16. Right of use assets

	2019
Cost	
At 1 January 2019	-
Additions	27,652
At 31 December 2019	27,652
Accumulated depreciation	
At 1 January 2019	-
Charge for the year	(10,519)
At 31 December 2019	(10,519)
Carry amounts:	
At end of year	17,133

The Group leases mainly building assets with an average lease term of 5 years. The Group has an option to purchase certain buildings it currently occupies at market value.

Most of the lease agreements which run for one year are renewed on an annual basis for the same period.

17. Investments in Subsidiaries

		Place of incorporation and principle place of	Proportion of ownership interest/ voting rights held by
Name of subsidiary	Principle activity	Business	the Group
Kariba North Bank Extension Power Corporation Limited	Generation and supply of electricity	Zambia, Lusaka	100%
Kafue Gorge Lower Power Development Corporation Limited	Construction of the power generation facility	Zambia, Lusaka	100%
Batoka North Bank Power Corporation Limited	Construction of the power generation facility	Zambia, Lusaka	100%

17.1. Investments in associates and a joint venture

		Place of incorporation and principle place of	Proportion of ownership interest/ voting rights held by
Name and nature of investment	Principle activity	Business	the Group
Itezhi Itezhi Power Corporation Limited (Joint Venture)	Generation and supply of electricity	Zambia, Lusaka	50%
El Sewedy Electric Zambia Limited (Associate)	Manufacturing of distribution transformers ranging from 25kv to a maximum of 5,000kv (5mva)	Zambia, Ndola	40%
Zambia Electrometer Limited (Associate)	Manufacture of electricity meters and compact fluorescent lights.	Zambia, Ndola	40%

All the above associates and joint venture are accounted for using the equity method in these consolidated financial statements.

Summarised financial information in respect of each of the Group's material associates is set out below. The summarised financial information below represents amounts shown in the associate's financial statements prepared in accordance with the IFRS's adjusted by the Group for equity accounting purposes.

[i] Itezhi Power Corporation Limited (Joint Venture)

	2019	2018
At the beginning of the year	971,761	531,697
Share of (loss) income for the year	(662,951)	440,064
	308,810	971,761
Statement of financial position:		
Current assets	1,750,898	2,601,797
Non-current assets	1,746,000	1,659,043
Current liabilities	851,704	432,383
Non- current liabilities	2,026,428	1,883,791
Net assets of the joint venture	618,766	1,944,666
Proportion of the Group's ownership	50%	50%
Group share of net assets	309,383	972,333
Statement of comprehensive income:		
Revenue	1,253,618	997,551
Net exchange gains	238,807	47,345
(Loss) profit and total comprehensive (loss) profit	(1,325,901)	880,127
	(1,325,901)	880,127
Proportion of the Group's ownership	50%	50%
Group share of joint venture's (loss) profit for the year	(662,951)	440,064

[ii] El Sewedy Electric Zambia Limited (Associate)

	2019	2018
At the beginning of the year	43,433	27,829
Share of profit for the year	8,092	15,604
	51,525	43,433
Statement of financial position:		
Current assets	249,394	194,045
Non-current assets	131,749	79,903
Current liabilities	181,393	139,915
Non- current liabilities	10,433	-
Net assets of the joint venture	189,317	134,033
Proportion of the Group's ownership	40%	40%
Group share of net assets	75,727	53,613

	2019	2018
Statement of comprehensive income:		
Revenue	92,670	107,356
Profit for the year	(2,998)	17,505
Total comprehensive income for the year	20,229	39,010
Proportion of the Group's ownership	40%	40%
Group share of associate's profit for the year	8,092	15,604

[iii] Zambia Electrometer Limited (Associate)

	2019	2018
At the beginning of the year	26,511	19,868
Share of loss for the year	(21)	6,643
	26,490	26,511
Statement of financial position		
Current assets	11,700	20,839
Non-current assets	6,684	7,284
Current liabilities	98,227	107,941
Non- current liabilities	2,219	2,218
Net liabilities of the joint venture	(82,062)	(82,036)
Proportion of the Group's ownership	40%	40%
Group share of net liabilities	(32,825)	(32,814)
Statement of comprehensive income:		
Revenue	-	45,193
Profit for the year	-	16,608
Total comprehensive loss for the year	(53)	16,608
Proportion of the Group's ownership	40%	40%
Group share of associate's loss for the year	(21)	6,643
Summary of associates position:		
At the beginning of the year	59,199	36,952
Share of profit and loss for the year:		
ElSewedy Electric Zambia Limited	8,092	15,604
Zambia Electrometer Limited	(21)	6,643
	8,071	22,247
Total closing position for both associates	67,270	59,199

17.2. Investments in strategic reserve fund

	2019	2018
The movement in the investment during the year was as follows:		
Balance at beginning of year	19,580	13,596
Additions during the year	5,647	5,984
ERB - Strategy Reserve Fund write off	(25,227)	-
Balance at end of the year	-	19,580

In accordance with section 20(2)(c) of the Energy Regulation Act, chapter 436 of the laws of Zambia, ZESCO Limited is required to make contributions based on 1% of the additional gross revenue on the tariff increment awarded to it by Energy Regulation Board on the 1 July 2014. The Fund is planned to be used for developmental projects in the energy sector. ZESCO Limited is currently the sole contributor to the fund of which contributions began in the period under review. The Statutory Instrument to guide the strategic reserve fund management is currently still work in progress.

18. Inventories

	2019	2018
Materials	606,411	831,912
Goods in transit	37,884	21491
Fuel and lubricants	10,508	11393
Spares	10,866	9451
	665,669	874,247
Allowance for obsolescence	(73,604)	(4,656)
	592,065	869,591

The cost of inventories recognised as an expense during the year was K387 million (2018: K226 million).

Inventories are disclosed net of provision for obsolete stock amounting to K73.6 million (2017: K4.6 million).

19. Trade and other receivables

	2019	2018
The balance comprises:		
Gross trade receivables	7,828,447	6,392,582
Impairment allowance	(6,423,684)	(4,963,596)
	1,404,763	1,428,986
Other receivables		
Other receivables	1,917,575	1,446,833

	2019	2018
Staff receivables	-	9,144
Prepayments	31,221	40,183
Allowance for doubtful debts	(610,260)	(253,653)
	1,338,536	1,242,507
Total trade and other receivables	2,743,299	2,671,493
The movement in allowance for doubtful trade receivables is as follows:		
Balance at beginning of year	4,963,596	3,524,635
Reversal of impairment losses recognised on trade receivables	(224,304)	(91,452)
Additional provision prior year	2,204,759	243,089
Impairment losses recognised on trade receivables	0	1,287,324
At end of the year	6,944,051	4,963,596
The movement in allowance for doubtful debts for other receivables is as follows:		
Balance at beginning of year	253,653	478,871
Impairment losses recognised on other receivables	500,457	27,718
Reversal of impairment losses recognised on other receivables	(143,850)	(252,936)
At end of the year	610,260	253,653

The following tables detail the risk profile of trade receivables based on the Group provision matrix. As the Groups' historical credit loss experience shows significantly different loss patterns for different customer segments, the provision for loss allowance based on past due status is not further distinguished between the company's different customer bases.

31 December 2019	Not past due	0-30 past due	31-60 past due	61-90 past due	More than 90 days past due	Total
Expected credit loss rate	0%	16%	57%	74%	100%	89%
Estimated total gross carrying Amount at default	-	773,547	409,168	225,681	6,420,051	7,828,447
Lifetime ECL	-	122,041	234,105	167,855	6,420,050	6,944,051
	-	651,506	175,063	57,826	1	884,396
31 December 2018	Not past due	0-30 past due	31-60 past due	61-90 past due	More than 90 days past due	Total
Expected credit loss rate	-	21%	29%	32%	99%	78%
Estimated total gross carrying Amount at default	-	809,361	581,020	507,263	4,494,938	6,392,582
Lifetime ECL	-	171,991	170,743	160,376	4,460,486	4,963,596
	-	637,370	410,278	346,887	34,451	1,428,986

The average credit period on sales of goods is 60 days. Penalties are charged for late payment on mining customers.

The Group measures the loss allowance for trade receivables at an amount equal to lifetime ECL. The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position, adjusted for factors that are specific to the debtors, general economic conditions of the industry in which the debtors operate and an assessment of both the current as well as the forecast direction of conditions at the reporting date. The Group has recognised a loss allowance of 100% against all receivables over 120 days past due because historical experience has indicated that these receivables are generally not recoverable.

The Group writes off a trade receivable when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery, e.g. when the debtor has been placed under liquidation or has entered into bankruptcy proceedings, or when the trade receivables are over two years past due, whichever occurs earlier. None of the trade receivables that have been written off is subject to enforcement activities.

Trade Receivables placed as Security

Part of Copperbelt Energy receivables have been assigned as security for China Exim Bank Loan which was procured to finance the construction Kariba North Power Extension Corporation Limited. The Kalumbila Minerals Limited receivables have been assigned 100% towards the Power Purchases from Maamba Collieries Limited.

20. Share capital

	2019	2018
Authorised		
2,500,000,000 ordinary shares of K2 each	5,000,000	5,000,000
"Issued and fully paid"		
1,412,559,015 ordinary shares of K2 each	2,825,118	2,825,118
Movement during the year:		
At beginning of year	2,825,118	194
Issued shares	-	2,824,924
At 31 December 2019	2,825,118	2,825,118

(a) In the year 2018, the Group's issued share capital was increased from 96,894,542 shares @K0.002 to 1,412,462,000 shares @ K2. The authorised but not issued shares amount to 1,087,538,000 unissued shares for future utilisation.

(b) On 5 April 2018, the Group issued 1,412,559,015 additional shares @ K2 per share.

21. Related party transactions

The Group's immediate and ultimate holding Group is Industrial Development Corporation Zambia Limited incorporated in Zambia.

(i) Trading transactions

	2019	**2018**
Rendering of services	14,215	168,068
Purchases of services	175,320	(1,413,134)

(ii) Year end balances

a) Amounts due from related parties

"Itezhi tezhi Power Corporation Limited (ITTPC) incorporated in Zambia"	579,046	458,282
Government of the Republic of Zambia	3,241,728	2,657,600
Rural Electrification Authority	7,704	14,531
Zambia Electrometer Limited, incorporated in Zambia	2,675	2,675
Allowance for doubtful debts	(520,367)	-
	3,310,786	3,133,088
The movement in allowance for doubtful debts in respect of the amounts due from related parties is as follows:		
Balance at beginning of year	187,682	187,682
Charge for the year	520,367	-
At end of the year	708,049	187,682

The amounts outstanding are unsecured and will be settled in cash. No guarantees have been given or received. A provision for doubtful debts in respect of amounts due from related parties amounting to K520 million (2018: Nil) was made during the year.

The amounts outstanding are unsecured and will be settled in cash. No guarantees have been given or received. No expense has been recognised in the year for bad or doubtful debts in respect of the amounts due from related parties. However, in the prior year the entire balance due from Government had been provided for. These amounts are as a result of the trading activities of the Group.

(b) Amounts due to related parties

(Refer to Note 14 Cont'd to 21 (2))

For the year ended 31 December 2019

Itezhi Tezhi Power Corporation is a joint venture investment with 50% shareholding. Elsewedy Electric Zambia Limited and Zambia Electrometer Limited are associates.

(c) Key management personnel remuneration

(Refer to Note 14 Cont'd to 21 (2))

22. Borrowings

The movement on loan is as follows:

At beginning of year	22,228,799	13,462,755
Prior year adjustment		-
Borrowings arising during the year	5,992,125	6,925,241
Net exchange losses	4,939,617	4,171,429
Repayments made during the year	(3,146,274)	(2,330,626)
Balance at end of the year	30,014,267	22,228,799
The borrowings are repayable as follows:		
On demand or within one year	2,646,569	1,790,821
Loans payable within 1 to 2 years	2,078,159	2,140,260
Loans payable within 3-5 years	4,709,898	4,337,285
Loans payable over 5 years	20,579,641	13,960,433
Due after one year	27,367,698	20,437,978
	30,014,267	22,228,799

The borrowings are due to the following:

		2019	2018
i	Industrial Commercial Bank of China and the Export Import Bank of China	12,324,823	6,509,369
ii	Industrial Commercial Bank of China	3,217,555	3,058,246
iii	China Exim Bank	2,268,740	2,236,276
iv	Nordea Stanbic Bank	1,566,105	1,455,484
v	DBSA - Kafue Gorge Hydropower Station	1,317,009	1,147,992
vi	Standard Chartered Bank	1,033,950	1,164,749
vii	GRZ/International Development Agency	753,807	429,602
viii	"DBSA - Kariba North Bank Extension Power Corporation Limited"	713,110	698,291
ix	China Exim	636,538	537,797
x	GRZ/International Development Association - Kafue Muzuma"	587,476	496,468
xi	European Investment Bank	584,130	493,519
xii	GRZ/Agency Francaise De Development	485,900	410,526
xiii	African Development Bank	447,926	369,686
xiv	European Investment Bank - LTDRP loan facility	440,616	183,945
xv	Industrial Commercial Bank of China Facility-Chipata - Lundazi	410,441	176,969
xvi	Industrial Commercial Bank of China Facility Loan - Musonda Falls	403,825	357,362
xvii	Industrial Commercial Bank of China Facility -Mpika Transmission	391,410	137,139
xviii	India Exim Bank	382,032	484,156
xix	ZTE Short Term Loan	259,231	-
xx	GRZ/Japan International Cooperation Agency	217,956	95,558
xxi	China Machinery Engineering Corporation Limited	208,784	176,397
xxii	India Exim Bank Loan 2	200,590	
xxiii	European Investment Bank	199,130	168,240
xxiv	Standard Bank	125,295	176,432
xxv	China Exim Bank-Ii Kabwe-Pensulo	107,905	91,166
xxvi	Geria International Investments Llc	96,495	
xxvii	Mpande Limestone Limited - Bridging Finance	91,251	91,913
xxviii	Nigeria Trust Fund	84,713	71,572
xxx	Development Bank of Southern Africa Bank 1	70,420	75,343

		2019	2018
xxxi	Zanaco $20 Million Short Term Facility	70,060	
xxxii	GRZ/World Bank	62,330	52,661
xxxiii	Agency Francaise de Development	47,591	40,920
xxxiv	ATLASMARA (Z) Bank Limited	47,083	87,515
xxxv	GRZ/World Bank Facility 2	45,733	38,638
xxxvi	CNMC Industrial Zone Development	41,885	44,235
xxxvii	European Investment Bank 2	32,857	36,322
xxxviii	Stanbic Bank	23,882	100,894
xxxviv	China Jiangxi Bridge Finance	14,950	164,202
xxxvv	Escom Malawi Bridging Loan	733	-
xxxvvii	ZANACO - Short Term Facility	-	52,299
xxxvviii	Bank of China	-	48,225
xxxvvix	Stanbic Bank	-	39,056
xxxv	ATLASMARA (Z) Bank Limited	-	19,890
xxxvvi	Mpande Limestone Limited	-	11,733
xxxv	Barclays Bank Zambia Plc	-	4,546
xxxv	Industrial Development Corporation Limited DC - Shareholder Loan	-	73,990
		30,014,267	22,109,323

Summary of the arrangements:

i. Industrial Commercial Bank of China and the Export Import Bank of China

On 13 November 2017, a facility agreement of up to USD 1, 530, 576, 039 was signed between Kafue Gorge Lower Power Development Corporation Limited, Industrial and Commercial Bank of China Limited and The Export-Import Bank of China. Drawdowns had only began after the financial close was achieved in June 2018. As at 31 December 2019 KGL had drawn down a total of $887,520,697 (2018: $551,291,040).

ii. Industrial Commercial Bank of China

This is a US$285 million loan facility obtained from Industrial and Commercial Bank of China on 30 May 2011 to finance the Pensulo-Msoro-Chipata West 330 KV and Pensulo-Kasama 330 kV Transmission lines. Interest is 2.5% Margin plus LIBOR (Screen Rate), the Loan will be repaid over 10 years. The loan is denominated in United States Dollar and the balance at the reporting date was US$227.79 million or K3.217 billion.

iii. China Exim Bank

This is a US$315.6 million loan facility was obtained from China Exim Bank in October 2008 with tenure of 15 years. Interest is computed at LIBOR plus 2% per annum. The facility is secured by receivables from Copperbelt Energy Corporation Plc and Chambeshi Copper Mining Group. The loan is denominated in United States Dollar and as at reporting date, the loan balance was US$160.62 million or K2.27 billion.

iv. Nordea Stanbic Bank

This is a US$133 million loan facility obtained from Nordea bank on 14 August 2014. The loan was obtained to finance the connection of north western Province to the National Grid. The loan shall be repaid over a 14 year period including a grace period of 2 years. The interest rate is 3.69% per annum payable semi-annual. The loan facility is in United States Dollar and the balance at the reporting date was US$110.87 million or K1.57 billion.

v. Standard Chartered Bank ($122m)

This is a US$122 million loan facility obtained from Standard Chartered Bank in February 2016 to refinance the $40 million bridge facility and other general corporate purposes relating to capital projects but not limited to the upgrading of Musonda falls power station, new Lusiwasi Upper 15 MW plant, construction of Chama Lundazi Transmission Line. Interest is charged at an average of 5.75% plus 6 month Libor, semi-annum and the loan (principal plus interest) will be repaid over 7 years including 2 years grace period. The loan is denominated in United States Dollar. The loan balance at the reporting date was US$73.2 million or K1.03 billion.

vi. Development Bank of South Africa (DBSA) (KGL)

This is a US$100 million loan facility obtained from Development Bank of South Africa (DBSA) on 4 May 2016 to finance the Kafue Gorge Lower Hydro Power Project. Interest is charged at 9.4% plus 6 month Libor, semi-annum and the loan (principal plus interest) will be repaid over 15 years including 2 years grace period. The loan is denominated in United States Dollar. The loan balance at the reporting date was US$93.239 million or K1.30 billion.

vii. Development Bank of South Africa (DBSA) (KNBEPC)

The borrowing is a term loan facility of US$105.5 million from the Development Bank of Southern Africa Limited. The loan is used to finance the Kariba North Bank Extension Power Corporation project. The loan is to be repaid in equal instalments semi-annually commencing on 31 January 2013. Interest is charged semi-annually as the sum of the margin (4.95% before commencement of operations and 4.70% after commencement of operations) and 6 month LIBOR. The loan has a second ranking security on property, plant and machinery of the project and is denominated in United States Dollars.

viii. China Exim Bank

This is a US$45 million facility obtained from China Exim bank through the Ministry of Finance on 13 October 2014. The loan was obtained to Finance the Kariba North Bank- Kafue west 330KV transmission project. The interest rate is 2%. The facility is in United States Dollar and the balance as at the reporting was US$45.07 million or K636.54 million.

ix. GRZ/International Development Association-Kafue Muzuma

This is a US$60 million loan facility obtained from the International Development Association on 6 December 2012 by the Government of the Republic of Zambia and on lent to ZESCO to finance the Kafue Muzuma Transmission Project. Interest shall be computed at 2% per annum and the loan (principal plus interest) will be repaid over 20 years including 5 years grace period. The loan is denominated in United States Dollar. The loan balance at the reporting date was US$41.59 million or K587.48 million.

x. European Investment Bank

This is a EUR 50 million loan facility from the European Investment Bank (EIB) by the Government of the Republic of Zambia on the 10 December 2012. The facility was obtained for the purpose of financing the Itezhi-Tezhi Hydro Power plant, Mumbwa Substation and Lusaka West - Mumbwa Transmission Line Project. The facility shall be settled over a period of twenty five (25) years including a grace period of five (5) years. The interest is charged at 1.2% per cent per annum. The balance at the reporting date was US$41.35 million or K584.13 million.

xi. India Exim Bank

This is a US$47.33 million facility obtained from India Exim bank on 9 June 2012. The loan was obtained to finance the connection of Luangwa to the national grid. The loan will be repaid in seven equal instalments. The interest rate is LIBOR plus 5.5%. The facility is in United States Dollar and the balance as at the reporting was US$27.06 million or K382.06 million.

xii. GRZ/International Development Association

This is a US$105 million loan facility obtained from the International Development Association on 3 October 2013 by the Government of Republic of Zambia and on lent to ZESCO to finance the Lusaka Transmission and Distribution Rehabilitation Project. Interest is charged at 1.5% semi-annum and the loan (principal plus interest) will be repaid over 30 years including 10 years grace period. The loan is denominated in United States Dollar. The loan balance at the reporting date was US$53.37 million or K753.81 million.

xiii.GRZ/Agency Francaise De Development

This is a US$30 million loan facility obtained from the African Development Bank (ADB) by the Government of the Republic of Zambia on 19 December 2012. The loan was obtained to finance the transmission line for the Itezhi-Tezhi Hydro Power and Transmission Line Project. The loan facility is in United States Dollars and the balance at the reporting date was US$31.71 million or K447.93 million.

xiv.African Development Bank

This is a US$34.4 million loan facility obtained from the International Development Association on 18 December, 2012 by the Government of the Republic of Zambia and on lent to ZESCO to finance the construction of Itezhi Tezhi Power Station. Interest is computed at 1.5% semi annum and the loan (principal plus interest) will be repaid over 25 years including 5 years of grace period. The loan is denominated in United States Dollar. The balance at reporting date was US$34.4 million or K485.9 million.

xv. Industrial and Commercial Bank of China

This is a US$35.25 million loan facility obtained from Industrial and Commercial Bank of China by ZESCO Limited on the 26 January 2017. The loan facility was obtained to finance the rehabilitation and upgrading of Musonda Falls Hydro Power Plant. The loan shall be repaid over a 15 year period including a grace period of 3 years. The interest is LIBOR plus 3.35% per annum. The loan facility is in United States Dollar and the balance at the reporting date was US$29.9 million or K404 million.

xvi.European Investment Bank

This is a EUR 22 million loan facility obtained from the European Investment Bank (EIB) by the Government of the Republic of Zambia on the 4 of December 2012. The Government agreed to on-lend to ZESCO Limited on the terms and conditions set forth in the finance contract. The purpose of the facility was to finance the Kafue-Livingstone transmission Line project. The loan facility shall be repaid to the Government in equal semi-annual instalments beginning five (5) years after the signature date of the on-lending loan and ending ten (10) years after the date of such agreement. The interest is charged at one and half percent (1.5%). The loan facility is in US$14.1 million or K199.13 million.

xvii. Industrial and Commercial Bank of China

This is a US$36.84 million loan facility obtained from Industrial and Commercial Bank of China by ZESCO Limited on the 10 August 2017. The loan facility was obtained to finance the Connection of Lundazi and Chama to the National Grid. The loan shall be repaid over a 15 year period including a grace period of 3 years. The interest is LIBOR plus 3.35% per annum.The loan facility is in United States Dollar and the balance at the reporting date was US$29.06 million or K410.44 million.

xviii. Standard Bank of South Africa

This is a US$29.5 million facility obtained from Standard Bank of South Africa. The loan was obtained to finance the connection of North-western Province to the National grid. The interest rate is LIBOR plus 5% per annum. The loan is to be repaid over a period of 7 years with a 2 years grace period. The facility is in United States Dollar and the amount as at the reporting date was US$8.87 million or K125.3 million.

xix. China Machinery Engineering Corporation (CMEC)

This is a US$15 million facility (Bridging finance) obtained from China Machinery Engineering Corporation (CMEC) by ZESCO Limited on the 31 May 2018. The facility was obtained for the construction of Lusiwasi Upper Hydro Power Station. The tenure of the facility is 18 months from the date when the agreement came into effect to the date when the funds are available from the financial institutions. Funds and Interest shall be repaid at once after ZESCO Limited obtains financing or in twelve equal instalments whichever comes earlier. The interest is charged at 6% fixed per annum. The balance at the reporting date was US$14.78 million or K208.78 million.

xx. European Investment Bank

This is a EUR 22 million loan facility obtained from the European Investment Bank (EIB) by the Government of the Republic of Zambia on the 4 of December 2012. The Government agreed to on-lend to ZESCO Limited on the terms and conditions set forth in the finance contract. The purpose of the facility was to finance the Kafue-Livingstone transmission Line project. The loan facility shall be repaid to the Government in equal semi-annual instalments beginning five (5) years after the signature date of the on-lending loan and ending ten (10) years after the date of such agreement. The interest is charged at one and half percent (1.5%). The loan facility is in US$14.1 million or K199.13 million.

xxi. China Jianxi International

This is a US$16.94 million facility (Bridging finance) obtained from China Jiangxi International Corporation (CJIC) by ZESCO Limited on the 20 August 2018. The facility was obtained for the construction of the second Kabwe Stepdown-Pensulo 330KV Transmission Line project. The tenure of the facility is 16 months. Funds and Interest shall be repaid in 16 successive instalments. The interest is charged at 10% fixed per annum. The balance at the reporting date was US$10.06 million or K14.95 million.

xxii. Industrial and Commercial Bank of China

This is a US$29.6 million loan facility obtained from Industrial and Commercial Bank of China by ZESCO Limited on the 13 July 2016. The loan facility was obtained to finance the improvement of power supply in Mpika. The loan shall be repaid over a 15 year period including a grace period of 3 years. The interest is LIBOR plus 3.35% per annum.The loan facility is in United States Dollar and the balance at the reporting date was US$27.71 million or K391.41 million.

xxiii. Stanbic Bank

This is a US$31 million Letter of Credit facility obtained from Stanbic Bank (Z) Limited meant to finance importation, mobilisation and installation of equipment by Elsewedy of Egypt. The Letter of Credit agreement was finalised on the 17 February 2014 for a period of 70 months, with a grace period of 15 (Fifteen) months. The repayment will be US$563,636 in equal instalments of 55 months. The Letter of Credit was secured against the Group's receivables. The facility is in United States Dollar and the balance at reporting date was US$1.69 million or K23.88 million.

xxiv. GRZ/Japan International Cooperation Agency (JICA)

This is a Yens 5 billion loan facility obtained from JICA by Government of Republic of Zambia on 1 November 2010. There were additional drawdowns amounting to Yens 838 million during the year. The loan was lent to ZESCO to finance the Increased Access to Electricity Project. The loan shall be repaid over a 15 year period including a grace period of 5 years. The interest is charged at 0.05% per annum. The loan facility is in Japanese Yen and the balance at the reporting date was Yens 1.675 billion or K217.96 million.

xxv. Mpande Limestone (Z) Limited

The facility was obtained (Bridging Finance) for the power connection to Mpande Limestone (Z) Limited on 23 March 2018. It is to be paid in 45 months. The interest on this facility is at 4.5%. The balance at the reporting date was US$6.46 million or K91.25 million.

xxvi. The Export-Import Bank of China

This is a US$114 million facility obtained from Export-Import Bank of China (EXIM Bank of China) by ZESCO Limited on the 15 December 2017. The facility was obtained for the construction of the Second Kabwe Stepdown-Pensulo 330KV Transmission Line project. The tenure of the facility is 15 years. Funds and Interest shall be repaid in 24 successive semi-annual instalments. The interest is charged at 3.2% margin plus LIBOR per annum. The balance at the reporting date was US$7.64 million or K107.90 million.

xxvii. ATLASMARA (Z) Limited

This is a US$8 million Short Term Loan facility obtained from African Banking Corporation (Z) Limited on 8 October 2018 by ZESCO Limited to enable the Borrower procure Duplex Cable and other materials to reduce on the backlog of standard connections. Interest is charged at 9.5% and the loan (principal plus interest) will be repaid within 2 years. The loan is denominated in United States Dollar. The loan balance at the reporting date was US$3.33 million or K47.08 million.

xxviii. Development Bank of Southern Africa

This is a ZAR210.4 million loan facility obtained from Development Bank of South Africa Bank on 22 July 1998. The loan was obtained to finance the Power Rehabilitation Projects. The duration of the loan is 20 years including a grace period of 5 years. This is a related party Loan between the Parent Group and its subsidiary (ZESCO Limited). The loan facility has a fixed interest rate of 15.25% per annum. The balance as at the reporting date was ZAR69.66 million or K70.42 million.

xxix. Industrial Development Corporation Limited (IDC)

This is a US$10 million facility obtained from the Industrial Development Corporation Limited (IDC) by ZESCO Limited on the 20 September 2018. The facility was obtained for the purpose of discharging its debt obligation for power purchases to Maamba Collieries Limited (MCL) as at 31 August 2018. The tenure of the facility is 15 months. Funds and Interest shall be repaid in 12 successive instalments. The Loan is secured over the Buildings placed as collateral by ZESCO Limited. The interest is charged at 1.5% + lending base rate annum. The balance at the reporting date was US$0.00 million or K0.00 million.

xxx. Nigeria Trust Fund

This is a US$6.4 million loan facility obtained from the Nigerian Trust Fund by the Government of the Republic of Zambia on the 19 December 2012. The loan was lent to ZESCO Limited for the purpose of financing the Itezhi-Tezhi Hydropower and Transmission Line project. The loan shall be repaid over a period of twenty five (25) years including a grace period of five (5) years. The interest is charged at zero point seventy five (0.75%) per annum fixed interest rate. The loan facility is in United States Dollars and the balance at the reporting date was US$6.0 million or K84.71 million.

xxxi. GRZ/World Bank

This is a US$16 million loan facility obtained from World Bank by Government of Republic of Zambia on 9 February 2009. The loan was lent to ZESCO to finance the Increased Access to Electricity Project. The loan shall be repaid over a 20 year period including a grace period of 5 years. The loan will have a 2% interest charge per annum. The loan facility is in United States Dollar and the balance at the reporting date was US$4.41 million or K62.33 million.

xxxii. ZANACO Short-term Facility

This is a US$14.21 million loan facility obtained from Zambia National Commercial Bank by ZESCO Limited on the 18 July 2017. The loan facility was obtained to finance 15% advance payments to ZTE Corporation, KEC International, Howell and Sinohydro Corporation for delivery, supply and construction of Metropolitan Area Networks and transmission assets. The interest is at 8% and is paid monthly together with the principal. The loan facility is denominated in United States Dollars and will be repaid within 24 months. The balance at the reporting date was US$0.00 million or K0.00 million.

xxxiii. Bank of China

This is a US$48.4 million loan facility obtained from Bank of China on 20 May 2011. The loan was obtained to finance the extension of fibre network to other parts of the country. The facility is for duration of 8 years with the grace period of 2 years. The interest rate is LIBOR plus 3% per annum. The loan facility is in United States Dollar and the balance at the reporting date was US$0.00 million or K0.00 million.

xxxiv. CNMC Industrial Zone Development

The facility was obtained as capital contribution in 2009 on the Chambishi line from CNMC Industrial Zone Development who contributed 40% of the total project costs of US$27.8 million (i.e. US$11.1 million). It is to be paid in 180 equal instalments of US$61,778 per month. There is no interest on this amount and there is no security attached to the agreement. The balance at the reporting date was US$2.97 million or K41.88 million.

xxxv. Agency Francaise de Development

This is a €40 million loan facility obtained from Agency Francaise de Development by GRZ and on lent to ZESCO Limited on the 23 June 2016 to finance the improvement of power supply in Southern Division. The loan shall be repaid over a 20 year period including a grace period of 5 years. The interest rate 5.00% per annum fixed. The loan facility is in Euros and the balance at the reporting date was €3.0 million or K47.59 million.

xxxvi. Stanbic Bank

This is a US$31 million Letter of Credit facility obtained from Stanbic Bank (Z) Limited meant to finance importation, mobilisation and installation of equipment by Elsewedy of Egypt. The Letter of Credit agreement was finalised on the 17 February 2014 for a period of 70 months, with a grace period of 15 (Fifteen) months. The repayment will be US$563,636 in equal instalments of 55 months. The Letter of Credit was secured against the Group's receivables. The facility is in United States Dollar and the balance at reporting date was US$1.69 million or K23.88 million.

xxxvii. GRZ/World Bank Facility 2

This is a US$10 million loan facility obtained from World Bank by Government of Republic of Zambia on 21 March 2010. The loan was lent to ZESCO to finance the Increased Access to Electricity Project. The loan shall be repaid over a 20 year period including a grace period of 5 years. The loan will have a 2% interest charge per annum. The loan facility is in United States Dollar and the balance at the reporting date was US$3.24 million or K45.73 million.

xxxviii. European Investment Bank 2

This is a EUR7.6 million loan facility obtained from European Investment Bank by ZESCO Limited on 12 July 2005 to finance the Kariba North Bank Power Station Rehabilitation and Uprating Works under Power Rehabilitation Projects. The interest rate is EURIBOR plus 2.954% per annum. The loan facility is in Euro and the balance at the reporting date was EUR2.07 million or K32.86 million.

xxxix. Atlas Mara Bank (Z) Limited

This is a US$5 million facility (Short Term Facility) obtained from Atlas Mara Bank (Z) Limited by ZESCO Limited on the 3 April 2018. The facility was obtained to enable the Borrower (ZESCO Limited) to meet supplier payments to Aggrekko and Karpowership for emergency power that was imported in 2016. The tenure of the facility is one year. Principal and Interest shall be repaid monthly. The interest is charged at 9.5% fixed per annum. The loan is denominated in United States Dollar. The loan balance at the reporting date was US$0.00 million or K0.00 million.

xl. Mpande Limestone (Z) Limited

This is an interest free facility of US$2.5 million, is governed by the Connection Agreement (CA) signed on 30 December 2016, and the Power Supply Agreement (PSA) signed on 23 March 2018. The recoveries on this facility is through monthly invoices to Mpande by ZESCO and the final repayment date is the date of the invoice on which the last repayment deductions towards ZESCO Capital Contribution is made. The facility is denominated in United States Dollars currency and closing balance as at the reporting date was US$0.00 million or K0.00 million.

xli. Barclays Bank Zambia Plc

This is a letter of credit facility of US$15 million from Barclays Bank Plc Limited obtained on 7 November 2012, with tenure of 70 months and is repayable over 55 months. The facility is secured by Group's receivables deposited in Barclays Bank Accounts. The facility is in United States Dollar and the balance at reporting date was US$0.00 million or K0.0 million.

xlii. European Investment Bank 2

This is a EUR7.6 million loan facility obtained from European Investment Bank by ZESCO Limited on 12 July 2005 to finance the Kariba North Bank Power Station Rehabilitation and Uprating Works under Power Rehabilitation Projects. The interest rate is EURIBOR plus 2.954% per annum. The loan facility is in Euro and the balance at the reporting date was EUR2.07 million or K32.86 million.

xliii. ESCOM Malawi Financing

This is a US$270,454 interest free facility paid as capital contribution to finance the distribution line to from Chipata to Muchinji for power export to Malawi. The facility will be re-paid over 24 months through monthly billing deductions. The balance at the reporting date was US$ 51,835.90 or K0.732 million.

Breach of loan agreements

(i) European Investment Bank

The Group was non-compliant with some covenants because the current ratio was less than 1, the Debt Service Cover ratio was less than 2 and; the debt collection period was more than 45 days.

(ii) Development Bank of Southern Africa

The Group was non-compliant with the DBSA loan covenants. The Group was in breach of the leverage ratio, Debt Service Cover ratio and gearing ratio which was more than 71%.

(iii) Standard Chartered Bank

Debt to equity ratio was 1.2:1 was compliant to the covenant of 1.5:1 or less, we were not compliant to the Gross Debt to EBITDA was 34:1; and the Debt Service Cover Ratio was less than 1.25.

(iv) Stanbic Bank

The Group was compliant with the Debt to Equity percentage which was less than 140%. The Group was non-compliant with the Debt Service Cover ratio which was less than 1.25 and the ratio of Gross Debt to EBITDA was more than 6.

(v) Bank of China

The Group was non-compliant as the EBITDA to Total Interest Cost was less than 2 and; we were compliant to the ratio of Total Liabilities to Total Assets was less than 70%.

(vi) ZANACO

The Group was compliant with the gearing ratio which was less than 1; and was non-compliant with the current ratio which was less than 1.

23. Retirement benefit obligation

(i) Defined contribution plan - NAPSA

Defined contribution plans are a pension plan under which the Group pays fixed contributions into the National Pension Scheme Authority, which is a defined contribution plan. The Group has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods.

The Group's contributions to the defined contribution schemes are charged to profit or loss in the year to which they relate. The Group has no further obligation once contributions have been paid.

The total expense recognised in the profit or loss of K68.7 million (2018: 60.3 million) represents contributions payable to these plans by the Group.

(ii) LASF defined benefit plan

Under the terms of employment, qualifying employees of ZESCO Limited are members of a state-managed retirement benefit plan operated by the Local Authorities' Superannuation Fund ("LASF"). ZESCO Limited is required to contribute a specified percentage of payroll costs to the retirement benefit plan to fund the benefits. The only obligation of ZESCO Limited with respect to the retirement benefit plan is to make the specified contributions. The fund also administers the pension schemes of a number of organisations, including all local authorities. The last actuarial valuation of the entire fund for the five years period to 31 December 2017 was carried out and showed a deficit of K538 million. No provision has been made in these financial statements for any unfunded liability of the Fund as the directors are of the opinion that any liability will be met by the Government of the Republic of Zambia.

The Group's contributions to the plan are charged to profit or loss in the year to which they relate. The Group has no further obligation once contributions have been paid. The total cost of pension contributions during the year was K27.3 million (2018: K23.8 million). As at 31 December 2019, contributions of K2.3 million (2018: K2.8 million) due in respect of the current reporting period had not been paid over to the plans.

(iii) Long service retirement benefit

Under the terms of employment, qualifying employees of the Group are entitled to post-employment benefits. The benefits are defined benefit in nature based on the members' length of service and their salary at the earlier of retirement or death or termination from employment. The defined benefit plan is administered and paid for by the Group. The Plan runs on an unfunded basis as ZESCO Limited (the Employer) meets benefit costs as they fall due.

The most recent actuarial valuation of the present value of the defined benefit obligation was carried out on 31 December 2019 by African Actuarial Consultants. The present value of the defined benefit obligation, and the related current service cost and past service cost were measured using the projected unit credit method.

The plan typically exposes the Group to actuarial risks such as: interest rate risk, salary risk and liquidity risk.

Interest rate risk	The plan liabilities are calculated using a discount rate which is the long-term investment return which matches the yield on government bonds as reported in the IMF Report. A decrease in government bonds will increase the plan liabilities.
Salary risk	The present value of the defined benefit plan liability is calculated by reference to the future salaries of plan participants. As such, an increase in the salary of the plan participants will increase the plan's liability.
Liquidity risk	The plan is unfunded. There is a risk that resources might not be available when needed to pay the benefits that have become due.

Actuarial assumptions:

	2019	2018
Discounting rates	30%	19%
Salary increases	27%	16%

Benefit cost in to be recognized in profit and loss

	2019
Current service cost	249,392
Prior year service cost	575,525
Net interest	543,764
Profit and loss expense	1,368,681
Remeasurements to be recognized in other comprehensive income	
Gain from change in financial assumptions	(35,363)
Experience gains	(566,177)
	(601,540)

	2019	**2018**
At beginning of the year	2,254,092	2,168,509
Current service cost	249,392	291,498
Prior year service cost	575,525	-
Interest income	543,764	-
Gain from change in financial assumptions	(35,363)	-
Experience gains	(566,177)	-
Benefits paid during the year	(181,858)	(205,915)
At 31 December	2,839,375	2,254,092
Disclosed in the financial statements as:		
Non-current	2,014,458	2,075,842
Current	824,917	178 250
	2,839,375	2,254,092

Sensitivity of defined benefit obligation to actuarial assumptions

	2,019
Current results	2,839,375
Discount rate	
Increase by 1%	(3,030)
Decrease by 1%	3,060
Salary increase	
Increase by 1%	209,299
Decrease by 1%	(187,312)

The sensitivity of the defined benefit obligation to significant actuarial assumptions has been calculated using the same method (present value of the defined benefit obligation calculated with the projected unit credit method at the end of the reporting period) used when calculating the pension liability recognised within the statement of financial position.

The table above shows that assuming a long-term investment return that is 1% higher than the valuation assumption would yield a Defined Benefit Obligation that is K3.03 million lower than that reported. On the other hand, adopting a long-term investment rate that is 1% lower than assumed would yield a defined benefit obligation that is K3.06 million higher than reported.

Applying a long-term salary escalation rate that is 1% higher than assumed would yield a liability position that is K209.30 million higher than reported whereas a salary escalation that is 1% lower than expected would yield a liability value that is K187.31 million lower than reported.

(iv) Gratuity benefits

The Group accrues for short term gratuity benefits for employees on contracts between 1 to 3 years. The gratuity computations are based on the terms and conditions agreed with employees at the point of signing the contract;

The amounts to be recognised in the statement of financial position

	2019	2018
At beginning of the year	20,318	20,256
Current service cost	10,616	639
Benefits paid during the year	(15 734)	(577)
At year end	15,200	20,318
Disclosed in the financial statements as:		
Non-current	6,369	8,233
Current	8,831	12,085
	15,200	20,318

(v) Total retirement benefit obligation recorded on the statement of financial position

Long service retirement benefit	2,839,375	2,254,092
Gratuity benefits	15,200	20,318
	2,854,575	2,274,410
	2,854,575	2,274,410
Disclosed in the financial statements as:		
Non-current	2,020,827	2,084,075
Current	833,748	190,335
	2,854,575	2,274,410

24. Capital grants and capital contributions

	Capital grants	Capital contributions	Total
At 1 January 2018	303 499	2115 119	2418 618
Additions during the year	32 698	432 158	464 856
Amortisation of capital grants and contributions	(22,414)	(129,011)	(151 425)
At 31 December 2018	313,783	2,418,266	2,732,049
Additions during the year	9 736	212,298	222 034
Transfer of Assets from Rural Electrification Authority	47 409	-	47 409
Amortisation of capital grants and contributions	(23,990)	(150,390)	(174,380)
At 31 December 2019	346,938	2,480,174	2,827,112
Non current		2,708,961	2,602,043
Current		118,151	130,006
Total		2,827,112	2,732,049

25. Trade and other payables

	2019	2018
Trade payables	14,292,073	12,081,697
Sundry payables and accrued expenses	1,991,575	1,065,654
Employee related accruals	170,438	359,686
	16,454,086	13,507,037

Trade and other payables principally comprise amounts outstanding in respect of trade purchases and ongoing costs, as well as amounts accrued in respect of operating costs.

The average credit period on purchases of certain goods is 30 days. No interest is charged on trade payables. The Group ensures that all payables are paid within the credit time frame.

The Directors consider that the carrying amount of trade and other payables approximates their fair value.

26. Bank overdraft

	2019	2018
Barclays Bank Zambia Plc	15,066	15,279
Zambia National Commercial Bank Plc	27,504	39,654
	42,570	54,933

Barclays Bank Zambia Plc

An overdraft banking facility amounting to K50 million. The overdraft was agreed in January 2019 with a 12 month tenor with interest payable monthly at three month LIBOR plus 8.5%. The facilities are repayable strictly on demand. The amount drawn as on 31 December 2019 under this facility is K15.1 million (2018: K15.3 million). The facility is secured against unlimited collections held in the bank accounts from time to time.

Zambia National Commercial Bank Zambia Plc

An overdraft banking facility amounting to K50 million. The overdraft was agreed in January 2019 with a 12 month tenor with interest payable monthly at three month LIBOR plus 9.0%. The facilities are repayable strictly on demand. The amount drawn as on 31 December 2019 under this facility was K27.5 million (2018: K39.6 million). The facility is secured against unlimited collections held in the bank accounts from time to time.

27. Financial instruments

Capital risk management

The Group manages its capital to ensure that it will be able to continue as a going concern while maximising the return to stakeholders through the optimisation of the debt and equity balance. The Group's overall strategy remains unchanged from prior year.

The capital structure of the Group consists of cash and cash equivalents, interest bearing liabilities and equity attributable to equity holders of the Group, comprising issued capital, reserves and retained earnings.

Gearing ratio

The Group reviews the capital structure on an ongoing basis. As part of this review, the management considers the cost of capital and the risks associated with each class of capital. The Group has a gearing ratio of 61% (2018: 47%) determined as the proportion of net debt to equity.

The gearing ratio at the yearend was computed as follows:

	2019	2018
Debt (i)	27,367,698	20,437,978
Equity (ii)	17,596,727	22,891,837
Total debt and equity	61%	47%

(i) Debt is defined as long and short term borrowings.

(ii) Equity includes all capital and reserves of the Group.

Significant accounting policies

Details of the significant accounting policies and methods adopted, including the criteria for recognition, the basis of measurement and the basis on which income and expenses are recognised, in respect of each class of financial asset, financial liability and equity instrument are disclosed in the accounting policies to the consolidated financial statements.

The Directors consider that the carrying amounts of financial assets and financial liabilities recognised in the financial statements approximate their fair values.

Categories of financial instruments

Categories of financial instruments

Financial assets:		
- Amounts due from related parties	3,310,786	3,133,088
- Trade and other receivables	2,712,078	2,622,166
- Bank and cash	2,644,081	2,460,653
	8,666,945	8,215,907
Financial liabilities:		
- Amounts due to related parties	4,570,031	2,427,680
- Trade and other payables	16,283,648	13,147,351
- Borrowings	30,014,267	22,228,799
- Bank overdraft	42,570	54,933
	50,910,516	37,858,763

Financial risk management objectives

The Group's executive directors and management co-ordinates access to domestic markets and borrowings from related parties, monitors and manages the financial risks relating to the operations of the Group. These risks include market risk (including currency risk, fair value interest rate risk and price risk), credit risk, liquidity risk and cash flow interest rate risk.

The Group does not enter into or trade financial instruments, including derivative financial instruments, for speculative purposes.

Market risk

The Group's activities expose it primarily to the financial risks of changes in foreign currency exchange rates and interest rates. The Group does not enter into any derivative financial instruments to manage its exposure to interest rate and foreign currency risk, including forward foreign exchange contracts to hedge the exchange rate risk.

There has been no change to the Group's exposure to market risks or the manner in which it manages and measures the risk.

Foreign currency risk management

The Group undertakes certain transactions denominated in foreign currencies. Hence, exposures to exchange rate fluctuations arise. Exchange rate exposures are managed within approved policy parameters as approved by the Board of Directors.

The carrying amounts of the Group's foreign currency denominated monetary assets and monetary liabilities at the end of the reporting period are as follows:

	Financial assets		Financial liabilities	
	2019	2018	2019	2018
United States Dollar ($)	16,599,832	4,430,499	53,056,258	5,582,718
Japanese Yen (JPY)	-	-	217,956	95,558
South Africa Rand (ZAR)	-	74,398	70,420	75,343
Euro	-	-	129,313	86,885
GBP	-	-	750	-

Interest rate sensitivity analysis

The interest rate risks sensitivity analysis is based on the assumption that changes in the market interest rates affect the interest income or expenses of variable interest financial instruments:

The tables below sets out the impact on current profit before taxation of an incremental 5% parallel fall or rise in all yield curves during the year:

		Scenario 1	Scenario 2
		5% increase in variable interest rates	5% decrease in variable interest rates
At 31 December 2019			
Loss before tax	(5,938,549)	(6,235,476)	(5,641,622)
At 31 December 2018			
Loss before tax	(2,722,381)	(2,858,500)	(2,586,262)

Interest rate risk management

The Group, its subsidiaries, associates and joint venture are exposed to interest rate risk arising on shareholder's loans and loans from the banks for its working capital requirements.

The exposure to interest rate risk is evaluated regularly by management to align with interest rate views and defined risk appetite, by either positioning the statement of financial position or protecting interest expense through different interest rate cycles.

Interest rate sensitivity analysis

The sensitivity has been determined based on the exposure to interest rates for non-derivative instruments at the end of the reporting period. For floating rate liabilities, the analysis is prepared assuming the amount of the liability outstanding at the end of the reporting period was outstanding for the whole year. A 5% increase or decrease is used when reporting interest rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in interest rates.

The Group, its subsidiaries, associates and joint venture's sensitivity to interest rates has increased during the current period mainly due to the increase in variable rate debt instruments.

Credit risk management

Credit risk management refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group is exposed to credit risk in respect of trade and other receivables. As at the financial period end the Group had trade receivables which were due from the Group's customers.

The Group's maximum exposure to credit risk is analysed below:

	2019	**2018**
Amounts due from related parties	3,310,786	3,133,088
Bank and cash balances	2,644,081	2,460,653
Trade and other receivables	2,712,078	2,622,166
	8,666,945	8,215,907

Liquidity risk management

The Group manages liquidity risk by maintaining adequate reserves and banking facilities and by continuously monitoring forecast and actual cash flows and matching the maturity profile of financial assets and liabilities.

The following table below details the Group's remaining contractual maturity for its non-derivate financial assets and liabilities. The table below has been drawn up based on the undiscounted contractual maturities of the financial assets and liabilities.

	2019	2018
Mining	6,752,434	5,224,018
Exports	430,548	237,496
Domestic customers	128,305	146,994
The Local authorities and water utilities	306,578	507,018
Government and relented entities	188,813	253,109
Industrial and related sectors	15,817	18,933
Agriculture and related sectors	5,952	5,014
	7,828,447	6,392,582

28. Fair value measurements

The information set out below provides information about how the Company determines fair values of various financial assets and financial liabilities.

	Payable on demand	1 - 3 months	3 months to 1 year	Above 1 year	Total
Year ended 31 December 2019					
Financial liabilities					
- Trade and other payables	-	-	16,283,648	-	16,283,648
- Bank overdraft	42,570	-	-	-	42,570
- Borrowings		-	2,646,569	27,367,698	30,014,267
- Amounts due to related parties	-	-		4,570,031	4,570,031
	42,570	-	18,930,217	31,937,729	50,910,516
Financial assets					
- Amounts due from related parties	-	-	3,310,786	-	3,310,786
- Trade and other receivables			2,712,078	-	2,712,078
- Bank and cash balances	2,644,081	-	-	-	2,644,081
	2,644,081	-	6,022,864	-	8,666,945
Year ended 31 December 2018					
Financial liabilities					
- Trade and other payables	-	-	12,081,697	-	12,081,697
- Bank overdraft	54,933	-	-	-	54,933
- Borrowings			1,790,821	20,437,978	22,228,799
- Amounts due to related parties	-	-	-	2,427,680	2,427,680
	54,933	-	13,872,518	22,865,658	36,793,109
Financial assets					
- Amounts due from related parties	-	-	3,133,088	-	3,133,088
- Trade and other receivables	-	-	2,622,166	-	2,622,166
- Bank and cash balances	2,460,653	-	-	-	2,460,653
	2,460,653	-	5,755,254	-	8,215,907

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, grouped into Levels 1 to 3 based on the degree to which the fair value is

- Level 1 – Quoted prices (unadjusted) in active markets for identical assets or liabilities. This level includes listed equity securities and debt instruments on exchanges (for example, Lusaka Stock Exchange).
- Level 2 – Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (that is, as prices) or indirectly (that is, derived from prices).
- Level 3 – inputs for the asset or liability that are not based on observable market data (unobservable inputs). This level includes equity investments and debt instruments with significant unobservable components.

This hierarchy requires the use of observable market data when available. The Company considers relevant and observable market prices in its valuations where possible.

Fair value of the Company's financial assets and financial liabilities that are measured at fair value on a recurring basis.

There were no financial assets and liabilities that are measured at fair value on a recurring basis during the period.

Fair value of financial assets and financial liabilities that are not measured at fair value on a recurring basis (but fair value disclosures are required).

Except as detailed in the following table, the directors consider that the carrying amounts of financial assets and financial liabilities recognised in the financial statements approximate their fair values.

For the year ended 31 December 2019

	2019		2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Loans and receivables:				
- Amounts due from related parties	3,310,786	3,310,786	3,133,088	3,133,088
-Trade and other receivables	2,712,078	2,712,078	2,622,166	2,622,166
Total	6,022,864	6,022,864	5,755,254	5,755,254
Financial liabilities				
- Borrowings	30,014,267	30,014,267	22,228,799	22,228,799
- Trade and other payables	16,283,648	16,283,648	12,081,697	12,081,697
- Amounts due to related parties	4,570,031	4,570,031	2,427,680	2,427,680
- Bank overdraft	42,570	42,570	54,933	54,933
Total	50,910,516	50,910,516	36,793,109	36,793,109

	Level 1	Level 2	Level 3	Total
Fair value hierarchy as at 31 December 2019				
Financial assets				
Loans and receivables:				
- Amounts due from related parties	-	-	3,310,786	3,310,786
- Bank and cash balances	-	-	2,644,081	2,644,081
-Trade and other receivables	-	-	2,712,078	2,712,078
Total	-	-	8,666,945	8,666,945
Fair value hierarchy as at 31 December 2019				
Financial liabilities:				
Financial liabilities held at amortised cost:				
- Amounts due to related parties	-	-	4,570,031	4,570,031
- Trade and other payables	-	-	16,283,648	16,283,648
- Borrowings	-	-	30,014,267	30,014,267
- Bank overdraft	-	-	42,570	42,570
Total	-	-	50,910,516	50,910,516
Fair value hierarchy as at 31 December 2018				
Financial assets				
Loans and receivables:				
- Amounts due from related parties	-	-	3,133,088	3,133,088
-Trade and other receivables	-	-	2,622,166	2,622,166
- Bank and cash	-	-	2,460,653	2,460,653
Total	-	-	8,215,907	8,215,907
Financial liabilities:				
Financial liabilities held at amortised cost:				
- Amounts due to related parties	-	-	2,427,680	2,427,680
- Trade and other payables	-	-	12,081,697	12,081,697
- Borrowings	-	-	22,228,799	22,228,799
- Bank overdraft	-	-	54,933	54,933
Total	-	-	36,793,109	36,793,109

The fair values of the financial assets and financial liabilities included in the level 3 category above have been determined in accordance with generally accepted pricing models based on a discounted cash flow analysis, with the most significant inputs being the discount rate that reflects the credit risk of counterparties.

29. Lease liabilities

At beginning of the year	-
At initial recognition	33,783
Finance costs	5,046
Repayments	(7,960)
At year end	30,869
Maturity analysis	
Year 1	27,231
Year 2	9,473
Year 3	1,927
Year 4	695
Year 5	49
	39,375
Less: Unearned interest	(8,506)
	30,869
Analysed as:	
Non-current	19,271
Current	11,599

30. Budgeted commitments

	2019	**2018**
Authorised by the directors but not contracted for	7,836,027	4,515,600

The funds required to meet the budgeted capital expenditure will be generated from borrowings and trading activities of the group.

31. Contingent liabilities

There were no known material contingent liabilities at 31 December 2019 and 31 December 2018.

32. Events after the reporting date

On 30 January 2020, the World Health Organisation announced the outbreak of COVID-19 as a world health emergency of international concern, and on 11 March 2020 the outbreak was classified as a global pandemic. The outbreak of COVID-19 and the subsequent measures imposed by various Governments in an attempt to contain the spread of the virus, including travel and trade restrictions, social distancing measures and enforced lockdowns have caused disruption to businesses and economic activity in the country.

Outcomes ranging from successful virus containment with a short-term economic impact, to a prolonged global contagion resulting in a potential local or global recession are possible. At the same time, there are a number of policy and fiscal responses emerging across the globe intended to mitigate potential negative economic impacts. We are monitoring the COVID-19 outbreak and developments closely. The Group follows guidance from the World Health Organisation and abides by the requirements as activated by local governments. Contingency plans have been implemented as far as possible to mitigate the potential adverse impact on the Group's employees and operations."

As the events arising as a result of the Government interventions in response to the COVID-19 pandemic only occurred after the reporting date the Group considers this to be a non-adjusting post balance sheet event and accordingly the financial effects resulting from the impact of COVID-19 have not been reflected in the Group's financial statements.

As the situation remains fluid and rapidly evolving (due to continuing changes in government policy and evolving business and customer reactions thereto) as at the date these financial statements are authorised for issue, the directors of the Group considered that the financial effects of COVID-19 on the Group's financial statements cannot be reasonably estimated. Nevertheless, the economic effects arising from the COVID-19 outbreak are expected to materially affect the results of the Group for the first half and full year of 2020.

One of the major Bulk Supply Agreements (BSA) that ZESCO had expired on 31 March 2020.

For the year ended 31 December 2019

The water levels at Itezhi Tezhi Dam and Kariba North Bank Power Stations are projected to increase significantly by mid-year of 2020. This is based on the current water inflows being monitored by Hydrological department from Kafue and Zambezi Rivers which feeds into the respective Dams.

No other matter or circumstance has occurred subsequent to year end that has significantly affected, or may significantly affect, the operations of the Group, the results of those operations or the state of affairs of the entity at the reporting date.