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FORMULATION OF THE LESOTHO ELECTRICATION MASTER PLAN

Grid Development Plan Report

(Draft)

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Formulation of the Electrification Master Plan

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Grid Development Plan Report
(Draft)

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Drafted by:
Thyrsos Hadjicostas
Dayalin Padayachy

Reviewed by:
Ralf Tobich

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AAAC	all aluminium alloy conductor
ABC	aerial bundle conductor
ACSR	aluminium conductor steel reinforced
AETS	Application Européenne de Technologies et de Services
EA	enumerator area
EDM	Electricite de Mozambique
EMP	Electrification Master Plan 2017
EU	European Union
EUD	European Union Delegation
GDP	gross domestic product
IRR	internal rate of return
kW	kilowatt-hours
kVA	kilovolt-ampere
LCC	life-cycle cost
LEC	Lesotho Electricity Company
LNDC	Lesotho National Development Corporation
LV	low voltage
M	Lesotho Maloti (currency)
MEM	Ministry of Energy and Meteorology
MV	medium voltage
MWh	megawatt-hours
NSDP	National Strategic Development Plan
SDGs	sustainable development goals
SWER	single wire earth return
TWG	Technical Working Group for the EMP

1 EXECUTIVE SUMMARY

This report represents the prioritised 2017 – 2036 *Grid Development Plan* for the electrification of Lesotho. It covers a 20-year time horizon and is meant to enable systematic, predictable and equitable off-grid electricity roll-out, with a view to enhance quality of life, provide income-generating opportunities and alleviate poverty in Lesotho.

The *Grid Development Plan* caters for all those areas of Lesotho that are economically feasible to be reached by the national power grid. It uses current LEC technical standards and pricing and takes account of the utility's planned network expansion and extensions. Network performance simulations were conducted at 5-year intervals.

A sustained annual electrification budget of M 150 million is assumed for the EMP, based on the current level of government budget allocation for this purpose. The Ministry of Energy and Meteorology (MEM) decreed that 80% of this budget – M 120 million per year – shall be allocated to grid electrification for the time being, with the balance – M 30 million per year – going towards off-grid electrification.

The planning methodology was discussed and agreed with stakeholders via the Technical Working Group (TWG), to ensure alignment with current thinking and the country's goals and needs. The EMP also takes cognisance of the country's development objectives.

While the EMP would ideally have used village-level planning, this was not possible because essential village data – number of households per village – was not available. Instead, enumerator area (EA) data from the 2016 census is used as the primary building block for the electrification planning.

The prioritisation of grid projects followed the methodology described in the separate report titled '*Action & Investment Plan*' that forms part of the EMP and resulted in annual electrification schedules that fit within the available budget. The prioritisation algorithm provided for a 2-stage process, with the first stage separating grid and off-grid EAs and the second stage ranking projects in priority order. EAs were evaluated based on the number of households, public buildings, anchor customers, agreed weighting factors etc. and a scoring was assigned to each EA, with a higher score indicating a higher priority ranking.

The grid demand forecast methodology and outcome is documented in the *Demand Forecast Report*' (dated 5 April 2018). For existing customers, the methodology comprises regression analysis based on the gross domestic product (GDP) growth rate for all customer categories except households, which were assumed to retain constant demand. For future customers, the methodology comprises spatial analysis to determine potential future customer numbers.

A critical process prior to planning a future rural electricity network is the standardisation of the equipment, technology and network configurations that will be utilised. The existing LEC *Engineering Management Manuals* have been consulted to ensure there is alignment with current thinking and practices.

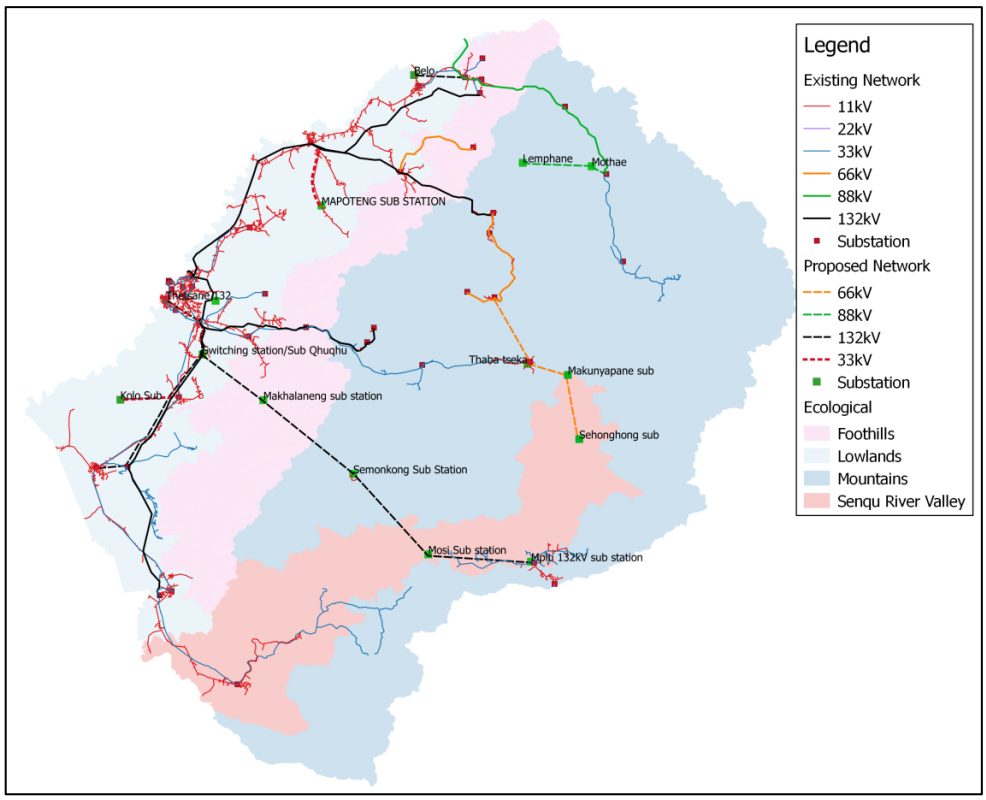
It is important to realise that the characteristics of rural customers will differ from those in urban areas, mainly in their density and load requirements, and this needs to be reflected in the network design. Rural networks are often characterised by long lines, low voltages and light loading. It is therefore important that appropriate technology choices are made in order to ensure that costs are contained without compromising quality of supply standards.

Planning criteria are then set to define the conditions under which the grid will be expanded. A typical grid electrification project yields an average cost per grid

electrification connection of around M 15,000 which is made up of the following components:

COMPONENT	COST [M]
2 km of 11kV 3-phase line	380,000
200kVA distribution transformer (11/0.4kV)	66,660
12 km of LV lines	1,206,768
150 LV service connections	600,000
TOTAL COST	**2,253,428**
Cost per connection	M 15,023

The future electricity transmission and distribution network of Lesotho will develop as depicted on the map below, in accordance with LEC's system expansion plan.



With an annual investment of M 120 million an average of 7,756 grid connections can be provided each year, i.e. 155,127 connections – 97% of which are household connections – for a total budget over 20 years of around M 2.33 billion. 1 399 EAs will be grid-electrified in this time, with a total load of 73,468 kVA and an annual energy consumption of 455,672 MWh. The breakdown of these figures by customer category is as follows:

EA Infrastructure to be Electrified	Number of Connections	Load (kVA)	Energy Consumed [MWh/annum]
Households	150,062	68,924	414,319
Hotels and Guest Houses	26	58	363,066
Other Businesses	3,675	3,418	21,706

EA Infrastructure to be Electrified	Number of Connections	Load (kVA)	Energy Consumed [MWh/annum]
Primary Schools	453	424	5,910
Secondary Schools	15		
Clinics	1	126	1,203
Health Centres	54		
Hospitals	1		
Hostels	22		
Agricultural Resource Centres	17	15	113
Community Council Offices	12	12	89
Principal Chief's Offices	6	7	53
Local Courts	10	7	71
Police Stations	11	33	337
Post Offices	11	7	74
Other Government Facilities	11	5	41
Churches	740	432	2,745
TOTAL	**155,127**	**73,468**	**455,672**

When all these connections are made, the technical losses will amount to 28,252 MWh per annum and the total annual operating cost will reach around M 76.5 million.

2 INTRODUCTION

In August 2017, the European Union Delegation (EUD) appointed AETS Consortium (the Consultant) to undertake the "*Formulation of the Electrification Master Plan*" for Lesotho. This electrification master plan (EMP) covers a 20-year time horizon and caters for both grid and off-grid electrification. It is meant to enable systematic, predictable and equitable grid expansion and off-grid electricity roll-out, with a view to enhance quality of life, provide income-generating opportunities and alleviate poverty in Lesotho.

This report represents the prioritised 2017–2036 *Grid Development Plan* for the electrification of Lesotho. It forms part of the overall EMP which also includes a prioritised *Off-Grid Master Plan* for the same period.

2.1 SCOPE OF THE GRID DEVELOPMENT PLAN

The mountainous terrain and low population density in the Senqu River Valley, Foothills and Highlands render grid extension largely unfeasible, which justifies electrification by off-grid means. The Grid Development Plan caters for all those areas of Lesotho that are economically feasible to be reached by the national power grid.

A sustained annual electrification budget of M 150 million is assumed for the EMP, based on the current level of government budget allocation for this purpose. The Ministry of Energy and Meteorology (MEM) decreed that 80% of this budget – M 120 million per year – shall be allocated to grid electrification for the time being, with the balance – M 30 million per year – going towards off-grid electrification.

While the EMP would ideally have used village-level planning, this was not possible because essential village data – number of households per village – was not available. Instead, enumerator area (EA) data from the 2016 census is used as the primary building block for the electrification planning.

2.2 METHDOLOGY

The *Grid Development Plan* uses current LEC technical standards and pricing and takes account of the utility's planned network expansion and extensions. Network performance simulations were conducted at 5-year intervals.

The prioritisation of grid projects followed the methodology described in the separate report titled '*Action & Investment Plan*' that forms part of the EMP and resulted in annual electrification schedules that fit within the available budget. The prioritisation algorithm provided for a 2-stage process, with the first stage separating grid and off-grid EAs and the second stage ranking projects in priority order. EAs were evaluated based on the number of households, public buildings, anchor customers, agreed weighting factors etc. and a scoring was assigned to each EA, with a higher score indicating a higher priority ranking.

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The planning methodology was discussed and agreed with stakeholders via the Technical Working Group (TWG), to ensure alignment with current thinking and the country's goals and needs. The EMP also takes cognisance of the country's development objectives contained in the following documents:

National Strategic Development Plan 2012/13 – 2016/17 – Key Goals

- Promote integrated and sustainable development in rural areas.
- Increase clean energy production capacity to attain self-sufficiency, export and have a greener economy.
- Develop small-scale electricity generation models that are viable for communities, where connection to the national power grid is not cost-effective.
- Develop basic infrastructure to increase access to services and markets and strengthen linkages between rural and urban markets.

Lesotho Energy Policy 2015-2025

- Contributing towards the improvement of livelihoods: The energy sector will contribute towards poverty alleviation in Lesotho. This will be achieved through the creation of income generating opportunities that sustain and improve the lives of people in the country through facilitating the provision of affordable technologies and services.
- Integrating energy into national and sectoral planning as a catalyst for energy effective utilisation to improve the livelihoods of the people of Lesotho as well as driving the economic growth.

Lesotho Vision 2020

- Development of a strong economy and environmental considerations.
- Decentralizing services and power to empower communities at the grassroots.
- Development of a proper economic infrastructure, including roads, telecommunications and electricity networks and reduction of the gap between the rich and the poor.
- Development of the use of technology in all aspects of life. Ninety percent of Basotho households will have access to electricity and thereby to communication and development technology.

3 EXISTING GRID AND SYSTEM EXPANSION PLAN

The electricity grid of Lesotho transfers power from the generation sources, namely 'Muela hydropower plant, Eskom (South Africa) and EDM (Mozambique), to the load centres. The supply from 'Muela and Eskom plus EDM (at Maseru intake) is transmitted through 132kV lines to Maputsoe and Mabote substations respectively. The supply from Eskom (Clarence intake) enters Lesotho through an 88kV line at Khukhune substation in Butha-Buthe, while Qacha's Nek intake is through a 22kV line from Matatiele.

The transmission lines are at 132kV, 88kV, 66kV and 33kV levels. However, there are places where LEC also distributes at the 33kV level, e.g. Thabana Morena in Mafeteng. The transmission voltages are stepped down to distribution voltages through 45 substations. Qacha's Nek and Mokhotlong districts are the only districts that are not connected to the main national grid.

The distribution network distributes power from substations to electricity users, transforming from the 11kV level to the customer supply at 220V (single-phase) and 380V (three-phase). The existing electricity transmission and distribution network (down to the 11kV level) of Lesotho is depicted in Figure 1.

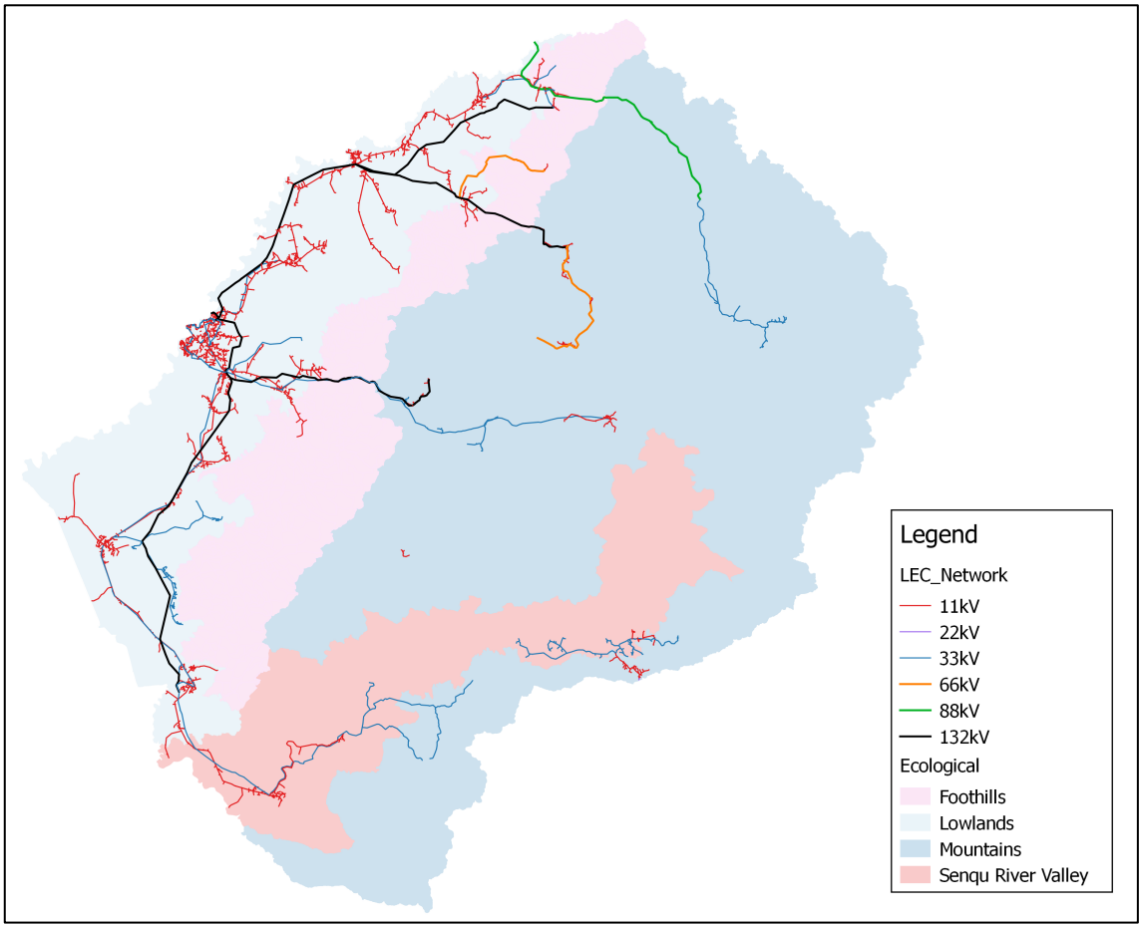


Figure 1: Existing Electricity Transmission and Distribution Network.

Once LEC's system expansion plan is implemented, the electricity transmission and distribution network of Lesotho will develop as depicted in Figure 2.

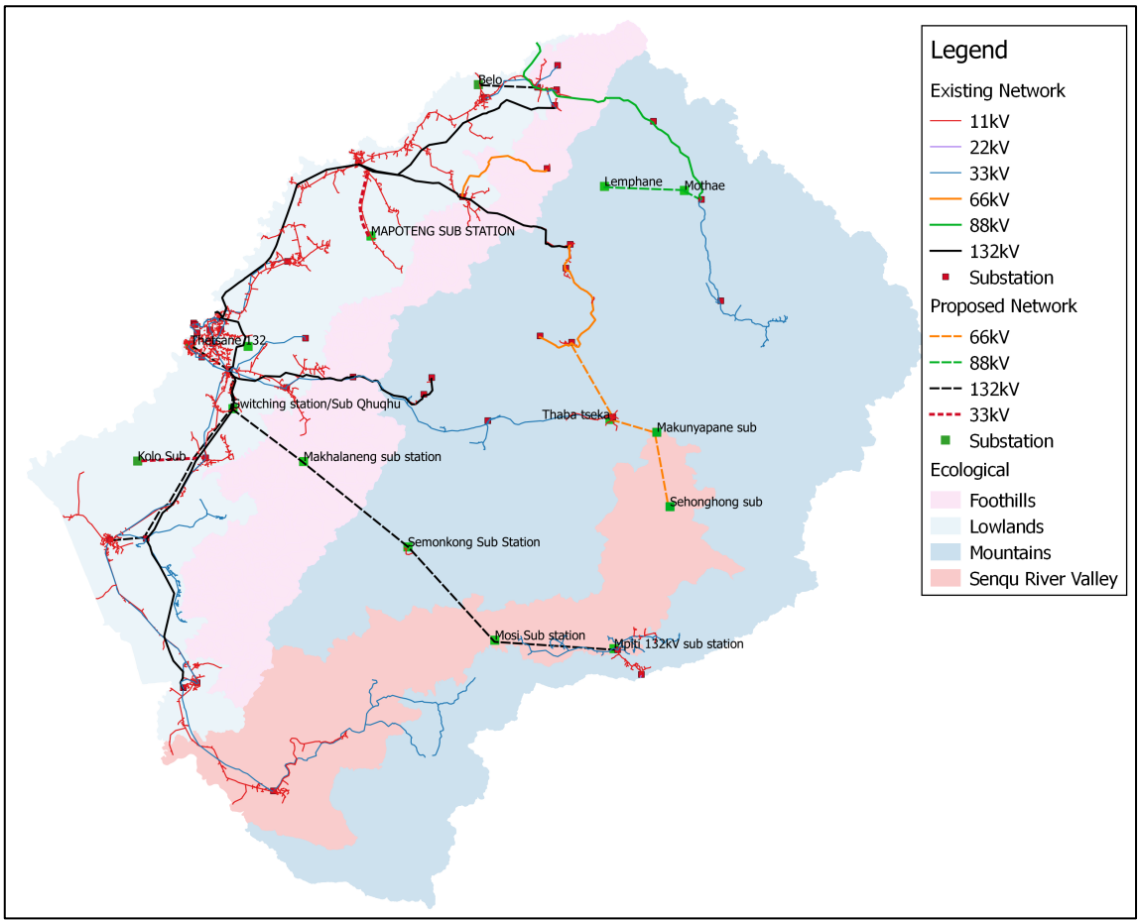


Figure 2: Future Electricity Transmission and Distribution Network

LEC's system expansion plan comprises the projects identified in Table 1.

Table 1: LEC System Expansion Plan Projects1

Type of Infrastructure	From	To	Description	Voltage	Year	Length (km)
Line	Mphaki	Sekake	Connection of currently isolated Qacha's Nek to main grid	33kV	2020	50
Line	St Agnes	Maputsoe	General reinforcement to meet existing demand growth	33kV	2020	30
Line	Maputsoe	Mapoteng	General reinforcement to meet existing demand growth	33kV	2020	30
Line	Thaba Tseka	Mokhotlong	Reinforcement of Thaba Tseka & Mokhotlong supply	33kV	2020	75
Line	Morija	Kolo	To address existing demand growth & for new mining	33kV	2019	25
Line	Botshabelo	Ha Makhoathi	General reinforcement to meet existing demand growth	33kV	2020	15
Line	Hlotse	Buth-Buthe	General reinforcement to meet existing demand growth	33kV	2020	30
Line	Katse	ThabaTseka	Reinforcement of Thaba Tseka supply	66kV	2022	50
Line	Mohale's Hoek	Mphaki	To reinforce existing grid	132kV	2021	150
Line	Muela	Khukhune	For reinforcement of South Africa connection and connecting of Letseng & Mokhotlong to 132kV grid	132kV	2018	8
Line	Khukhune	Ha Belo	To serve proposed new factories (LNDC)	132kV	2020	30
Line	Liqhobong	Lemphane	To supply Lemphane mine	132kV	2021	25
Line	Letseng	Mothae	To supply Mothae mine	33kV	2019	25
Line	Mazenod	Qacha's Nek	General reinforcement to meet existing demand growth	132kV	2021	230
Line	Mazenod	Thetsane	To achieve a 132kV grid "ring" connecting all regions of Lesotho	132kV	2021	25
Line	Mt Moorosi	Mosi	To achieve a 132kV grid "ring" connecting all regions of Lesotho	132kV	2021	70
Line	Lejone	Polihali	To achieve a 132kV grid "ring" connecting all regions of Lesotho	132kV	2021	80
Line	Polihali	Mokhotlong	Related to new hydro/dam expected	132kV	2020	30
Line	Letseng	Mokhotlong	To achieve a 132kV grid "ring" connecting all regions of Lesotho	132kV	2024	60
Line	Khukhune	Letseng	To achieve a 132kV grid "ring" connecting all regions of Lesotho	132kV	2024	75
Line	Letseng	Liqhobong	To achieve a 132kV grid "ring" connecting all regions of Lesotho	132kV	2024	50
Substation			Substations at Ha Mofoka, Ramabanta, Semonkong, Ha Mosi, Ha Mpiti		2021	
Substation			Electrification of Ha Ramabanta, Semonkong, Ha Mosi, Ha Mpiti		2021	
Customer compensation			Secure Line Route (compensation for 50 households)		2021	
Substation			Maseru South Substation	33/11kV	2019	

Type of Infrastructure	From	To	Description	Voltage	Year	Length (km)
Substation			Mapoteng Substation	33/11kV	2020	
Substation			Mokhotlong Substation	33/11kV	2020	
Substation			Kolo 33/11kv substation	33/11kV	2019	
Substation			Ha Makhoathi 33/11kV Substation	33/11kV	2020	
Substation			ThabaTseka Substation	66/11kV	2022	
Substation			Thetsane Substation	132/33kV	2021	
Substation			Ha Mofoka Switching Station	132kV	2021	
Substation			Upgrading of Khukhune to 132kV - for reinforcement of interconnection with South Africa	132kV	2018	
Substation			Ha Ramabanta Substation	132/33/11kV	2021	
Substation			Semonkong Substation	132/33/11kV	2021	
Substation			Ha Mosi Substation	132/33/11kV	2021	
Substation			Ha Mpiti B Substation	132/33/11kV	2021	
Substation			Ha Belo Substation - for reinforcement of interconnection with South Africa	132/33/11kV	2020	
Substation			Lemphane Substation	132/33/11kV	2021	
Substation			Mothae Substation	33/11kV	2019	
Other upgrades			New switchroom SW12 switching station to address load growths at Limkokwin, Lerotholi Polytechnic up to Mashoeshoe 2		2018	
Other upgrades			New switchgear at SW12 to address load growths at Limkokwin, Lerotholi Polytechnic up to Mashoeshoe 2		2018	
Other upgrades			New Switching Station at Ha Foso to address loads in the northern part of Maseru		2018	
Other upgrades			Replacement of mini-sub & 3-way RMU that limit capacity at Palace of Justice, Hills View, Husteds, CTC, Alliance, Sefika HS & Cenez Rd		2018	

4 GRID ELECTRIFICATION GUIDELINES

A critical process prior to planning a future rural electricity network is the standardisation of the equipment, technology and network configurations that will be utilised. The existing LEC *Engineering Management Manuals* have been consulted to ensure there is alignment with current thinking and practices.

It is important to realise that the characteristics of rural customers will differ from those in urban areas, mainly in their density and load requirements, and this needs to be reflected in the network design. Rural networks are often characterised by long lines, low voltages and light loading. It is therefore important that appropriate technology choices are made in order to ensure that costs are contained without compromising quality of supply standards.

4.1 MEDIUM VOLTAGE (MV) DISTRIBUTION SYSTEM

Prior to considering alternative technologies to reduce the distribution costs, it is recommended that the existing network designs are optimised:

- Conductors should be optimized to handle realistic demands expected over the life of the system with acceptable losses;
- Span lengths should be maximized to take advantage of the strength of conductors while not exceeding clearance limits;
- Pole lengths should not exceed those necessary to meet ground clearance requirements;
- Network designs should be standardized to minimize the use of specialized engineering expertise.

4.1.1 HV Poles

LEC presently uses 12m wooden poles for medium voltage lines. As poles are one of the costliest components of an electrification programme, significant cost reductions can be achieved through optimisation, which could include the use of:

- Alternative pole materials;
- Shorter poles;
- Longer spans (to reduce the number of poles required).

Alternative pole materials

Poles can be made from a variety of materials, most frequently wood, concrete, and steel. None of these has a clear-cut advantage in all situations, and both cost and specific attributes associated with the various options are factors that should be considered.

It is important to note that the point of this exercise is not too reduce costs at the expense of quality and strength. Although using less durable poles can reduce the initial capital cost, it will increase the life-cycle costs (LCC) of a line.

a) Wood

Wooden poles are widely used for electrification in Southern Africa and have a number of advantages, namely:

- They can be a produced and treated locally;
- They are lighter than the equivalent concrete pole (the common alternative) and easier to handle in the field;
- They are easy to climb;
- They are not susceptible to breakage during transport and handling;
- Their manufacture is not energy intensive (unlike that of cement and steel poles);

- They permit greater flexibility in the placement of mounting bolts and facilitate later modification in the field;
- They do not require special foundations and can be buried directly in the ground;
- Properly treated wood poles can last for decades, if inspected and maintained as part of a condition monitoring program.

b) Concrete

Where wooden poles are not an option, for whatever reason, steel-reinforced concrete is a common alternative. The manufacture of concrete poles is relatively inexpensive, because it can be done locally using readily available materials (cement and reinforcing steel). The most common designs include cast reinforced, cast pre-stressed, and spun concrete.

The disadvantages of concrete poles include (i) higher transport costs and difficulty of handling due to their weight, (ii) possibility of breakage during transport and handling, and (iii) susceptibility to failure due to corrosion of the reinforcing steel.

c) Steel

Where terrain access is a problem, steel poles offer a cost-effective alternative as they can be fabricated of smaller sections that can be easily transported and assembled on-site. Since the strength of the material is predictable, steel poles can be designed and manufactured to more exacting tolerances. However, steel is susceptible to corrosion (rusting) and requires appropriate precautions to be taken, including galvanizing or painting.

Shorter poles

The use of shorter poles can mean a significant reduction in cost for a rural electrification programme. For example, reducing the length of a wooden pole by 30% percent from (12m to 9m) decreases the cost almost 40%.

Table 2: Cost of Wood Poles

Length [m]	Diameter [mm]	Cost [M]
12	**160 – 180**	**1,257**
11	**160 – 180**	**1,135**
9	**160 – 180**	**781**

The extent to which shorter poles can be utilised is determined by the minimum acceptable clearance between the lowest conductor and the ground. The minimum clearance to ground on 11kV and open wire systems is based on the NRS041 requirement of 5.5m when located above roads and 5.1m when not involving road, rail, telephone or power line crossings.

The available clearances for standard pole lengths, assuming a vertical configuration with 600mm phase spacing and no sag, are summarised in Table 3. The figures indicate that both 9m and 11m poles will provide adequate clearance at 11kV.

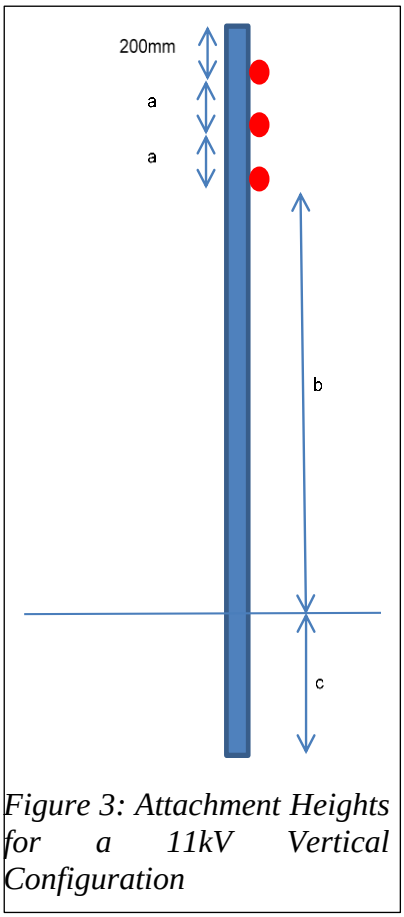


Figure 3: Attachment Heights for a 11kV Vertical Configuration

Table 3: 2-Phase and 3-Phase Clearances

Pole length (mm)	Approx. Burial depth, c (mm)	Phase separation, a (mm)	Clearance requirement at 11kV, b (mm)	2-Phase clearance (mm) with no sag	3-Phase clearance (mm) with no sag
9 000	**1 500**	**600**	**5 100**	**6 700**	**6 100**
11 000	**1 800**	**600**	**5 100**	**8 400**	**7 800**
12 000	**2 200**	**600**	**5 100**	**10 000**	**9 400**

Longer spans

While the use of shorter poles reduces costs, network design optimisation must also consider the span lengths as these determine the number of poles required. Longer spans generally require longer poles and finding the most cost-effective combination of pole size and span length for a specific conductor type and configuration is the crux of the optimisation exercise.

Depending on the application significant costs savings are possible by selecting the optimal pole length. This is only realistically achievable during the design phase once a survey has been conducted.

4.1.2 MV Conductor

After poles, conductor is the most costly component of an overhead line. The factors that impact on conductor cost are material, cross-sectional area and length.

Conductor material

LEC exclusively uses ACSR on its network. The cost difference between all aluminium alloy (AAAC) and aluminium cable steel reinforced (ACSR) conductors is approximately 30% but if one factors in the lower tensile strength of AAAC and hence shorter spans this saving is reduced to 7%. Bigger savings can be achieved by reducing the number of conductors or using smaller conductor sizes.

Cross-sectional area

While the choice of conductor size has a direct impact on its cost, it also indirectly affects network costs through structural requirements on poles and pole top hardware. Optimisation in this regard seeks to find the most cost-effective solution for minimising technical losses and meeting the requirements of the network over its operating life.

Figure 4 depicts the cost of losses for four typical ACSR conductors. The costs are calculated on the premise that the system current will grow steadily to reach the peak current value at the end of 25 years. From purely a system losses perspective the optimum ACSR conductor is Dog, followed by Rabbit, Gopher and Magpie.

Factoring in the capital cost of the conductor yields the LCC results shown in **Error! Reference source not found.**5, which indicates that even though smaller conductors have higher losses, they still are the most cost-effective option for rural electrification over the long term because of the low load factor of domestic customers combined with the capital savings of using a smaller conductor size.

As is the case with pole types and lengths, the decision on conductor size to be used is only possible during the detail design phase.

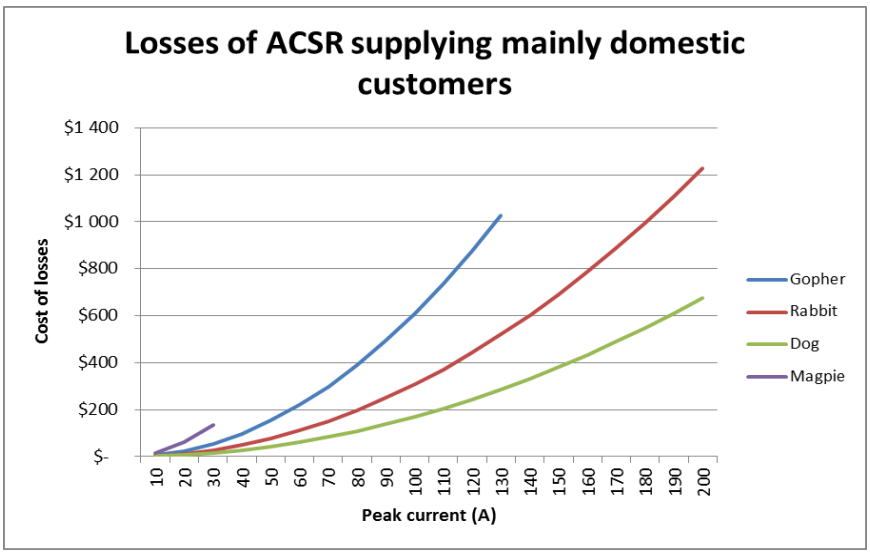


Figure 4: Cost of Losses for a Range of Typical ACSR Conductor

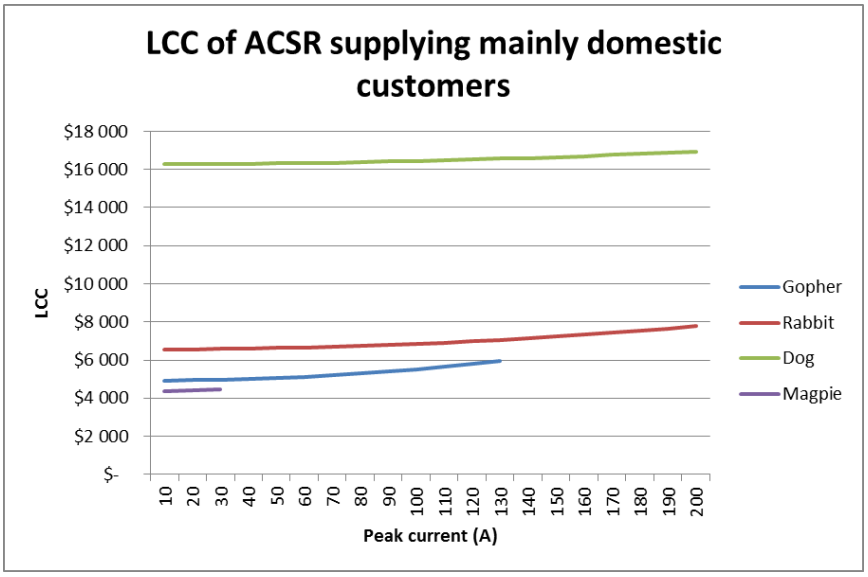


Figure 5: LCC for a Range of Typical ACSR Conductor

Conductor length

In attempting to contain conductor cost, using less conductor would have the biggest impact. The length of conductor required is a direct consequence of the chosen distribution technology: 3-phase, 2-phase and Single Wire Earth Return (SWER).

3-phase distribution is a proven technology and widely used in the current electrification programme, it does not need an explanation.

A 2-phase (sometimes referred to as single-phase) system is where the network is extended using two phases of a 3-phase system. In this case the subsequent LV distribution can only be done using a single-phase supply. A typical configuration of a 2-phase system is shown in **Error! Reference source not found.**6.

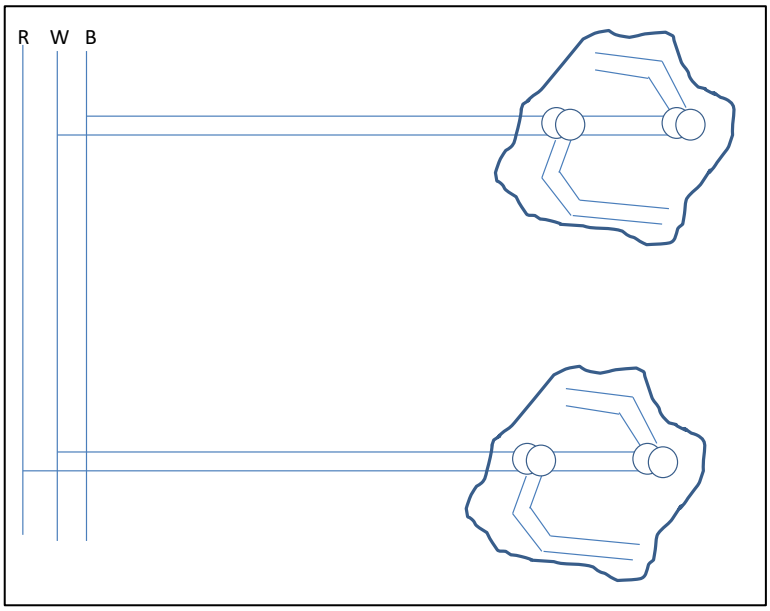


Figure 6: Typical Configuration of a 2-Phase System

SWER systems are used to transport electricity over long distances to serve small loads (eg a remote farm or small community), utilising a single conductor and the earth serving as return path for the current. A SWER system can be supplied directly from one phase of the 33kV system, or from an 11kV system through an isolating transformer. The latter option is generally preferred to prevent returning currents flowing to the source substation. A typical configuration of a SWER system is shown in **Error! Reference source not found.**.

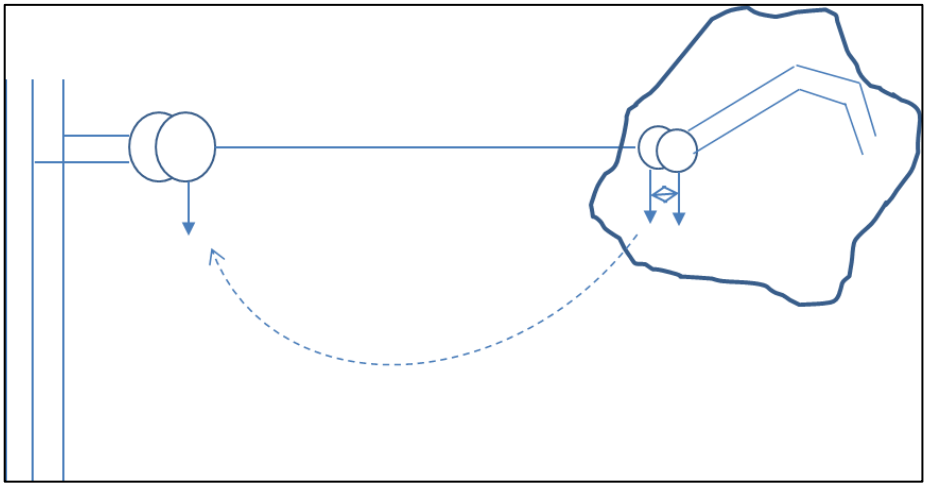


Figure 7: Typical Configuration of a SWER System

A comparison of the power transfer capability between 3-phase, 2-phase and SWER systems is shown in Figure 8. As one would expect, the 3-phase system is the most optimal for transferring power. But as distance increases and power requirements decrease (as is the case with most electrification areas), the performance of 3-phase, 2-phase and to a lesser extent SWER systems converge. The idea with optimisation is not to choose one system over the other, but rather to select the best solution for a particular situation. For areas with high power requirements close to the source, the optimal solution generally is a 3-phase network, but as the power requirements decrease and the distance from the source increases, 2-phase and SWER networks may offer a more cost-effective solution.

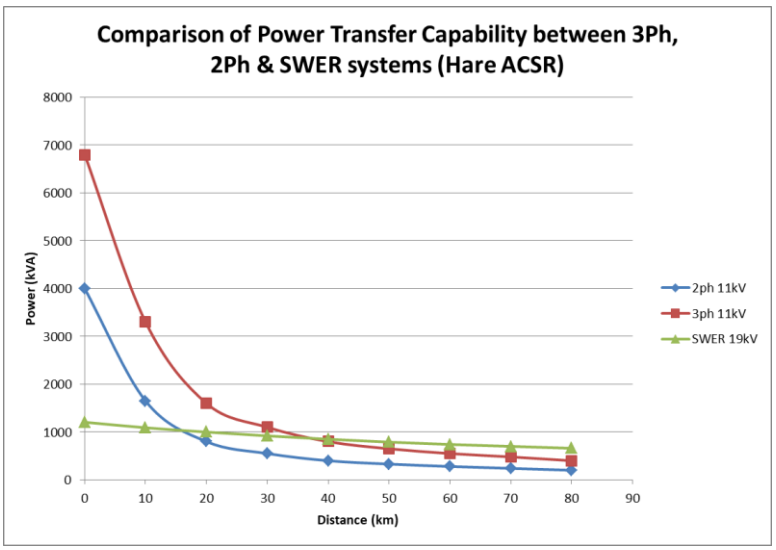


Figure 8: Power Transfer Capability of 3-Phase, 2-Phase and SWER

It is generally accepted that the 3-Phase system has the best power transfer capability, but that 2-phase and SWER systems are significantly less expensive. Therefore, the most suitable network configuration depends on the present and future load to be served which in turn determines the extent to which the power transfer capacity of the feeder is utilised.

4.2 LOW VOLTAGE (LV) DISTRIBUTION SYSTEM

The issues affecting the LV system (380/200V) are similar to those of the HV system, and where these have already been addressed under HV they will not be repeated here; instead, the relevant HV section will be referenced.

As is the case for the HV system, the first step in identifying cost saving opportunities is to ensure that the existing network designs are optimised, prior to considering alternative distribution technologies:

- Conductors should be optimized to handle realistic demands expected over the life of the system with acceptable losses;
- Pole lengths should not exceed those necessary to meet ground clearance requirements;
- Network designs should be standardized to minimize the use of specialized engineering expertise.

4.2.1 LV Poles

On the LV side, there are mainly two options for optimising pole costs, namely alternative pole materials and shorter poles. Unlike with HV poles, the span length for the LV network is often limited by the distance between customers.

Alternative pole materials

As for HV poles, the choice of material for LV poles includes wood, concrete and steel. The respective advantages and disadvantages of each material are similar for both HV and LV poles.

Shorter poles

According to NRS041 the minimum clearance to ground on 400V open wire systems is 5.5m when located above roads and 4.9m when not involving road, rail, telephone or power line crossings. The applicable ground clearances for the various pole lengths are summarised in Table 4, indicating that a 7m poles will provide adequate clearance.

Table 4: Clearances for ABC Conductors

Pole length (mm)	Burial depth (mm)	Existing Clearance requirement at 380V (mm)	Clearance with no sag (mm)
7,000	**1,300**	**5,500**	**5,500**
8,000	**1,400**	**5,500**	**6,400**
9,000	**1,500**	**5,500**	**7,300**
11,000	**1,800**	**5,500**	**9,000**

4.2.2 LV Conductor

The factors influencing LV conductor cost are similar to those on the HV side, for bare conductor, as well as choice of bare vs insulated conductor (aerial bundle conductor – ABC).

Bare conductor vs ABC

The advantages of ABC over bare wire are:

- Risk of contact between phases and ground objects is reduced (unless insulation is damaged) - this allows the use of shorter poles and lines being installed closer to existing structures;
- Less pole top hardware is required, which reduces material and labour costs;
- ABC is simpler to install as there is only one cable;
- Tree clearing is not required;
- If a line is damaged and falls to the ground, there is reduced risk of electrocution;
- Reduced risk of a neutral-only break from tree or vehicle damage;
- Electricity theft is more difficult.

The disadvantages of ABC over bare wire are:

- Cable is more costly;
- Relative lifespan is shorter due to insulation degradation;
- Shorter spans due to increased conductor weight.

Cross sectional area

The size of the conductor directly impacts material usage which affects costs. It is therefore important that the size of the conductor is selected to match expected demand over the life of the asset as well as providing adequate voltage and fault levels.

The current conductor sizes employed by LEC are $35mm^2$ and $70mm^2$. It is proposed that these conductor sizes are maintained but additional options for 3-core are added.

Conductor length

Choice of distribution network configuration influences conductor length in a significant way. There are three configuration options for LV distribution, namely 3-phase, dual-phase (also referred to as split-phase of bi-phase), and 1-phase.

3-phase and 1-phase distribution are currently used in Lesotho and need no further explanation. A dual-phase LV system transforms from a 1-phase HV supply to the secondary winding which is centre-tapped (i.e. using two single-phase windings of opposite polarity with a common neutral), as illustrated by the circuit diagram in **Error! Reference source not found.**.

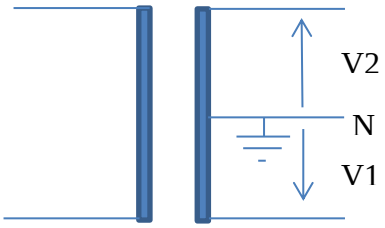


Figure 9: Circuit Diagram for Split-Phase System

The advantage of a dual-phase system over a 1-phase system is the sizing of the neutral conductor. While a single-phase system requires the phase and neutral conductor to be equally sized, a dual-phase system allows for a smaller neutral conductor to be used, as the current flowing from the two secondary windings partially (or fully, in a completely balanced system) cancel each other.

The relative power transfer capability of 3-phase, dual-phase and 1-phase systems is illustrated below. The cost of the three configuration options is influenced by the number of conductors and therefore 3-phase will be the most expensive option, followed by dual-phase and 1-phase. Dual-phase offers designers an intermediate step between 1-phase and 3-phase, and this is assumed to be the standard configuration for the EMP.

Table 5: Comparison between 3-Phase, Dual-Phase and 1-Phase

Parameter	1-Phase	Dual-Phase	3-Phase
Voltage	230V	Ph-N 230V Ph-Ph 460V	Ph-N 230V Ph-Ph 400V
Power transfer[1]	1	4	6
No of conductors	2	3	4

It should be noted that 3-phase LV feeders cannot be used with 1-phase HV lines. In general, phase-neutral LV feeders are very restrictive and lead to greater expense in HV infrastructure when the load grows above a critical level. Dual-phase feeders can handle almost as much power as 3-phase feeders but can be used on a 1-phase supply point. In practice, 1-phase feeders are often the most economic option, regardless of the low conductor efficiency, because they provide all that is needed. Dual-phase technology then gives the designer an upgrade route where the load exceeds the capacity of 1-phase feeders.

4.2.3 Service Connection

LEC currently prefers 8mm^2 conductor for service connections. No changes are recommended to this practice.

There are generally two options for charging rural customers for their electricity consumption, namely metering of actual consumption (using a prepayment meter) and charging a flat rate that is independent of actual consumption but limited in magnitude

[1] For similar volt drop

(using a current limiting device). General experience with the flat rate method has been negative, in the region, therefore it is not recommended that this is adopted.

4.3 DISTRIBUTION TRANSFORMER

Typically, the cost of distribution transformers is a small part of the construction cost of most networks serving rural areas. However, the cost for constructing a line is generally borne by hundreds or even thousands of consumers served by that line, while the capital cost of each transformer is usually borne by the much smaller number of consumers it serves.

Depending on design, a transformer's cost can be significant. Moreover, given that transformers consume power 24 hours per day independent of imposed load, operating costs can be even more significant, and it is therefore important that transformers are sized such that they are loaded up to 80% in the medium term (10 years). Considering the low demand and load density in rural areas it is advisable to use smaller rather than large transformers.

Typical distribution transformer sizes for rural electrification are as follows:

Table 6: Distribution Transformer Sizes

1-Phase	Dual-Phase	3-Phase
10 kVA	32 kVA	25 kVA
15 kVA	64 kVA	100 kVA
25 kVA		200 kVA

5 PLANNING AND DESIGN CRITERIA

The purpose of planning criteria is to define the conditions under which the grid will be expanded. Planning criteria are usually a mix of technical and statutory limits beyond which operation of the grid becomes problematic. In the case of design criteria these refer to the technologies that will be assumed to be used when extending the medium voltage grid.

5.1 PLANNING CRITERIA

5.1.1 Voltage limits

For network planning purposes, the network shall be designed to achieve a steady-state voltage between 95% and 105%. After a designated contingency, voltage shall be maintained between 90% and 110% of nominal voltage.

5.1.2 Current or thermal limits

Thermal ratings of overhead lines will be used as initial check of line overloading. A rating based on 75°C for normal conditions or 90°C for contingency conditions will be used.

5.1.3 Security of supply

A basic requirement of a network reliable operation is that all equipment will operate within its normal thermal rating and normal voltage limits when the network is 'intact' (with all elements in service), and within its emergency thermal rating and emergency voltage limits immediately after a disturbance involving the loss of an element (single contingency condition) without any loss of load (load shedding).

5.2 DESIGN CRITERIA

5.2.1 Voltage

The preferred voltage for grid extensions will be 11kV except for cases where the closest available network is 33kV. It is assumed that new customers will not be supplied directly at a higher voltage level.

5.2.2 Redundancy

Grid extensions in rural areas will be radial, i.e. loss of the line will result in supply interruptions to customers.

5.2.3 Grid technology

Due to the proximity (between 5 and 7.5km) of future grid connections to the existing network, the extensions will be based on 3-phase networks.

5.3 UNIT COSTS

The following unit costs are utilised for costing purposes and are based on information provided by LEC for the grid electrification standards currently applied in Lesotho, assuming the following configurations:

- Mink ACSR conductor for MV lines;
- 35 mm^2 aerial bundle conductor (ABC) for LV lines;
- 8 mm^2 service cable for household connections;

- Split meters, with the user interface in the building and the breaker on the LV pole; ready boards are not included.

Table 7: Unit Construction Costs

ITEM	CONSTRUCTION COST (M)
33kV 3-phase line per km	386,760
11kV 3-phase line per km	190,000
LV line per km	100,564
33/11kV transformer per kVA	255
33/0.4kV transformer per kVA	720
11/0.4kV transformer per kVA	333
LV service connection (including taxes / duties)	4,000

Considering the following typical grid electrification project, the average cost per grid electrification connection is around M 15,000 and made up of the following components:

Table 8: Analysis of Typical Grid Electrification Project

COMPONENT	COST [M]
2 km of 11kV 3-phase line	380,000
200kVA distribution transformer (11/0.4kV)	66,660
12 km of LV lines	1,206,768
150 LV service connections	600,000
TOTAL COST	**2,253,428**
Cost per connection	M 15,023

6 GRID ELECTRIFICATION TIME-PLAN AND COST

6.1 OFF-GRID BUDGET ALLOCATION

The assumed government annual budget allocation for grid electrification is M 120 million (as per MEM directive), out of a total available annual electrification budget of M 150 million (see **Error! Reference source not found.**).

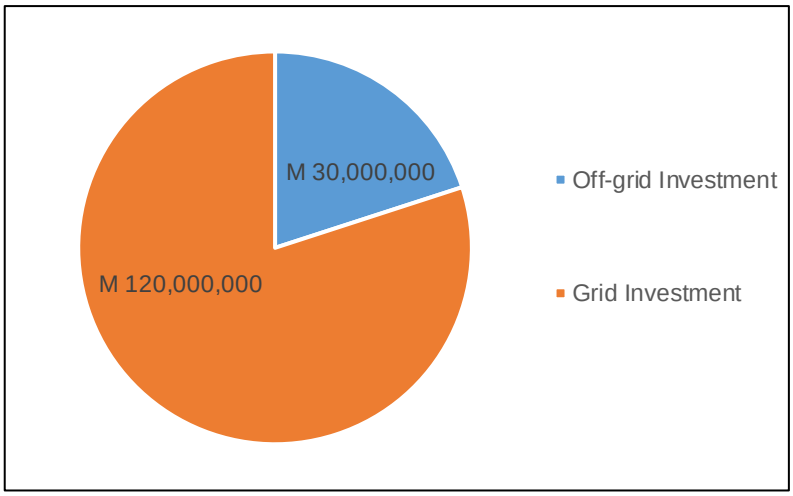


Figure 10: Annual Budget Allocation for Grid and Off-Grid

6.2 GRID ELECTRIFICATION EAs

Taking this budget into consideration, a total of 1,602 EAs are identified which can be electrified over the next 20 years under the Stage 1 distance prioritisation presented in the separate *Action & Investment Plan* report (Annex I), i.e. with distance to the closest grid less than 5 km in the Senqu Valley and Highlands or less than 7.5 km in the Lowlands and Foothills. When the customer density (more than 70 per EA) requirement is also applied, the number of EAs to be grid-electrified is reduced to 1,399. These EAs all have road access and are suitable for grid electrification.

The selected 1,399 EAs are then ranked in accordance with the Stage 2 prioritisation method, which yields the following grid-electrification results over 20 years: 155,127 connections with a total load of 73,468 kVA and an annual energy consumption of 455,672 MWh and technical losses of 28,252 MWh per annum. When all these connections are made, at an overall M 2.33 billion capital cost over the 20-year period, the total operating cost will reach around M 76.5 million per annum.

Table 9: Grid Electrification Overview over 20 Years

EA Infrastructure to be Electrified	Number of Connections	Load (kVA)	Energy Consumed [MWh/annum]
Households	150,062	68,924	414,319
Hotels and Guest Houses	26	58	363,066
Other Businesses	3,675	3,418	21,706
Primary Schools	453	424	5,910
Secondary Schools	15		

EA Infrastructure to be Electrified	Number of Connections	Load (kVA)	Energy Consumed [MWh/annum]
Clinics	1	126	1,203
Health Centres	54		
Hospitals	1		
Hostels	22		
Agricultural Resource Centres	17	15	113
Community Council Offices	12	12	89
Principal Chief's Offices	6	7	53
Local Courts	10	7	71
Police Stations	11	33	337
Post Offices	11	7	74
Other Government Facilities	11	5	41
Churches	740	432	2,745
TOTAL	**155,127**	**73,468**	**455,672**

6.3 TIME-PLAN

With an annual investment of M 120 million an average of 7,756 grid connections can be provided each year, i.e. 155,127 connections – 97% of which are household connections – for a total budget over 20 years of around M 2.33 billion.

The detailed yearly rollout schedule based on a M 120 million budget allocation can be found in the Annex to this report (Section 9). The tables show the ranking order and year of implementation for each EA as well as the investment costs for each. These are summarised in Table 10 below, together with the annual number of connections, load and associated energy consumption over the 20-year period and illustrated graphically in Figures 11 – 15.

Table 10: Annual Grid Electrification Roll-Out Summary

Implementation Year	Number of EAs Electrified	Investment [Maloti]	Number of Connections Provided	Load (kVA)	Energy (MWh/annum)
Year 1	70	118,980,000	7,932	4,122	23,574
Year 2	72	120,810,000	8,054	3,935	25,186
Year 3	76	119,805,000	7,987	3,581	23,152
Year 4	77	119,625,000	7,975	3,689	23,536
Year 5	74	120,030,000	8,002	3,741	23,863
Year 6	64	119,565,000	7,971	3,491	22,495
Year 7	65	121,080,000	8,072	3,497	22,868
Year 8	66	118,800,000	7,920	3,654	22,855
Year 9	68	120,360,000	8,024	3,728	22,798

Implemen-tation Year	Number of EAs Electrified	Investment [Maloti]	Number of Connections Provided	Load (kVA)	Energy (MWh/annum)
Year 10	79	119,355,000	7,957	4,065	24,017
Year 11	81	121,440,000	8,096	3,788	23,777
Year 12	74	120,045,000	8,003	3,679	23,377
Year 13	72	119,275,000	7,953	3,669	23,593
Year 14	74	120,060,000	8,004	3,963	24,587
Year 15	75	120,675,000	8,045	4,138	24,703
Year 16	71	119,610,000	7,974	3,709	24,440
Year 17	72	119,190,000	7,946	3,680	21,811
Year 18	71	120,795,000	8,053	3,696	22,958
Year 19	72	120,210,000	8,014	4,074	24,225
Year 20	26	47,175,000	3,145	1,569	8,858
TOTAL	**1,399**	**2,326,905,000**	**155,127**	**73,468**	**455,672**

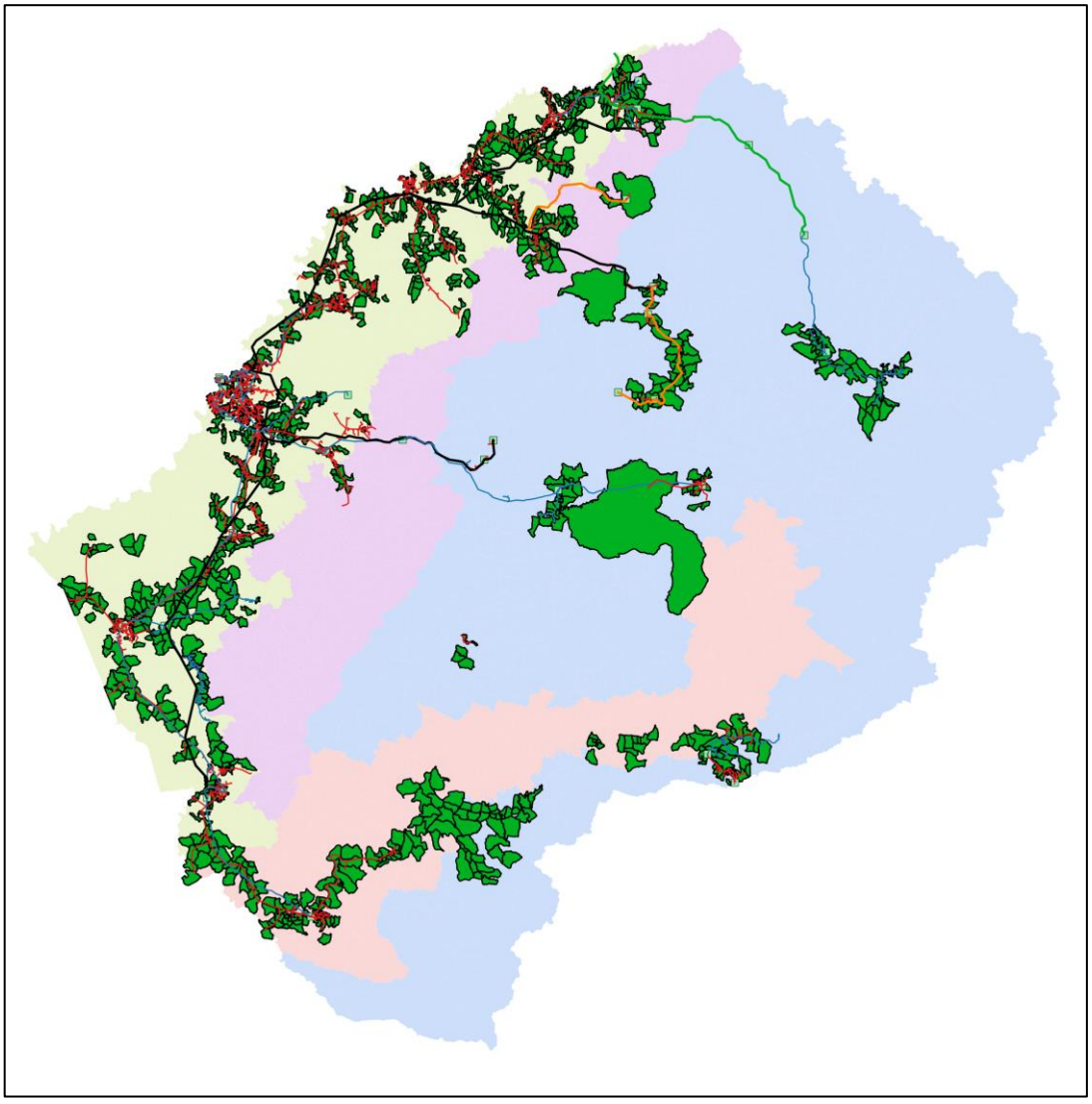


Figure 11: Existing Grid-Electrified EAs (in green)

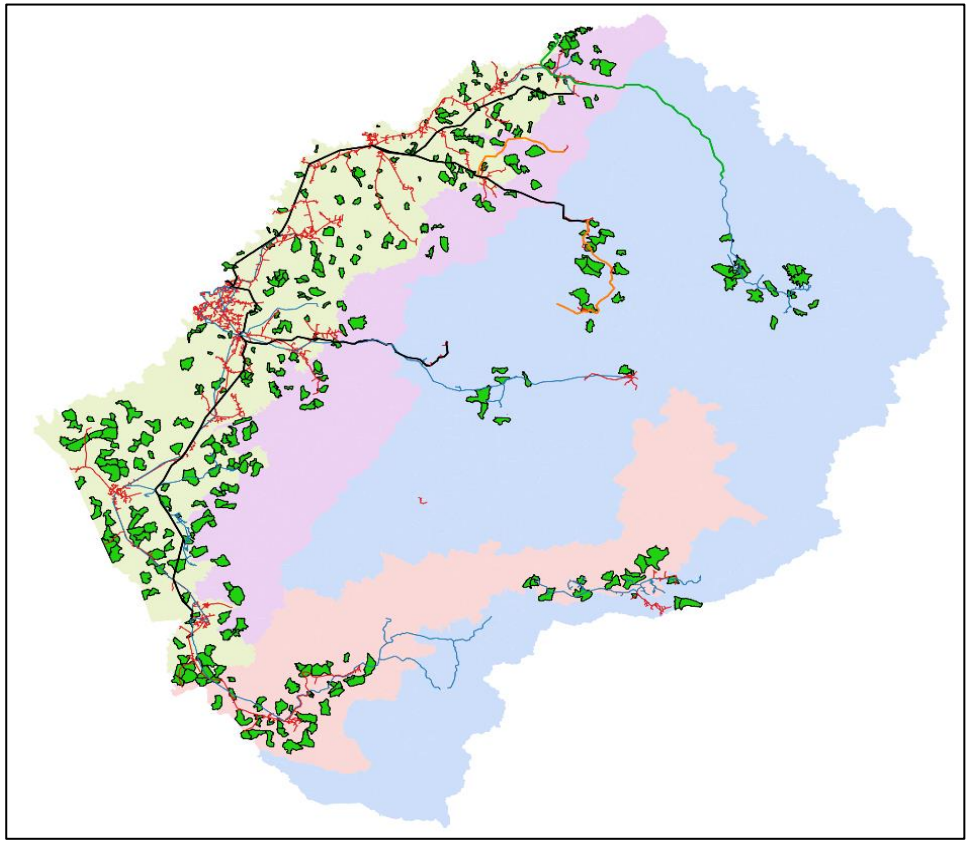


Figure 12: Additional Grid-Electrified EAs in 5 Years (green)

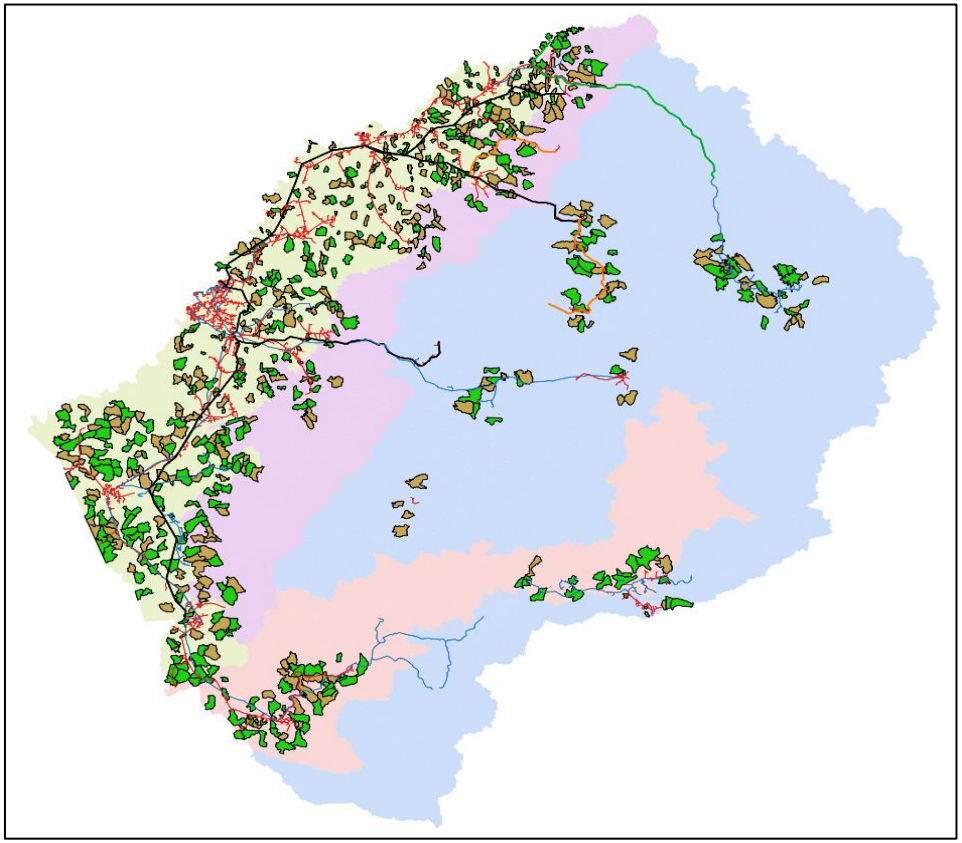


Figure 13: Additional Grid-Electrified EAs in 10 Years (brown)

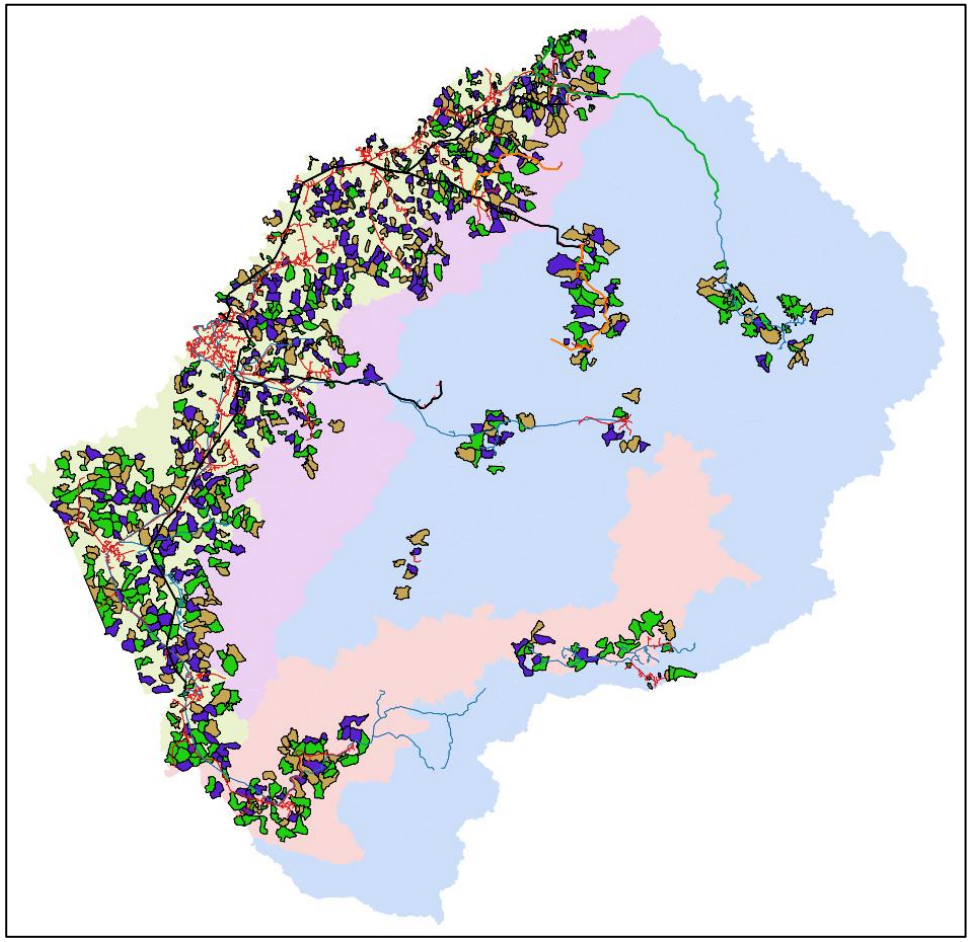


Figure 14: Additional Grid-Electrified EAs in 15 Years (purple)

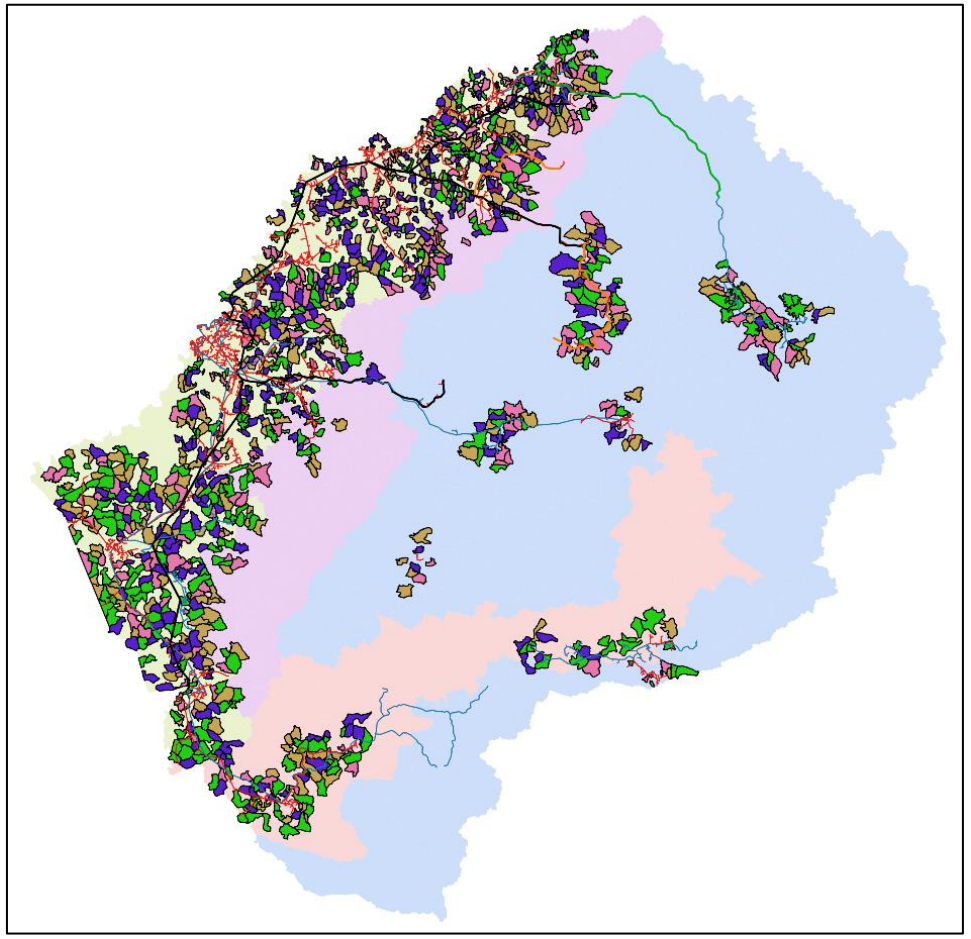


Figure 15: Additional Grid-Electrified EAs in 20 Years (pink)

7 FUTURE GRID PERFORMANCE SIMULATIONS

Network studies were performed using DigSilent ver.15. The network case file was obtained from the LEC Planning Department and was populated with the existing data and forecasted loads for years 5, 10, 15 and 20. The following steps were followed in compiling the network development plan:

- The LEC expansion plan projects were implemented in their respective years.
- Network analysis for each year was performed under normal conditions.
- Where there were thermal or voltage constraints, the option of transferring load to planned substations was investigated. For cases where this was not an option the line, transformer and shunt capacity upgrades were carried out to ensure that the network is capable of supplying the anticipated load.
- Various planning options were evaluated to:
  - Ensure the least-cost upgrade to the network;
  - Minimise new servitudes required;
  - Maintain overall network integrity under normal operation;
  - Minimise network losses.

The geographical layout of the substations was always considered to ensure the minimum distances for new lines, which means lower line costs and less servitudes for new lines.

7.1 LOAD FORECAST

The substation forecast that was used in the load flow analysis is shown in **Error! Reference source not found.** 11. The forecast parameters are contained in the separate *Demand Forecast Report*. In addition, the following load transfers were affected:

- 50% of the load on Roma substation was transferred to Ramabanta (Makhalaneng) substation in Year 5.
- 180kW of the existing mini hydro load at Semokong was added to the new Semokong substation in Year 5. Also, an additional 1MW of suppressed demand was added to the substation demand.
- 50% of the load in the Mpaki area (Quthing substation) was transferred to Ha Mosi substation in Year 5.
- 100% of the Qacha's Nek load was transferred to Ha Mpiti in Year 5.

Table 11: Substation Forecast

Substation	Demand [kVA]				
	Year 0	Year 5	Year 10	Year 15	Year 20
Botsabelo 33/11kV	11,944	13,180	14,616	16,278	18,207
Buthe Buthe 33/11kV	4,072	6,643	9,079	10,567	11,349
Ha Belo 132/33kV	0	500	2,500	5,000	5,000
Highway 33/11kV	9,983	11,693	13,681	16,162	19,255
Hlotse Adit 66/11kV	6,448	7,913	9,323	11,141	13,364
Hololo 3311kV	506	854	1,139	1,305	1,709
Katse Dam 66/11kV	942	1,347	1,925	2,441	2,836
Kolo 33/11kV	0	2,000	2,000	2,000	2,000

Substation	Demand [kVA]				
	Year 0	Year 5	Year 10	Year 15	Year 20
LEC Border 33/11kV	7,955	9,228	10,812	12,789	15,253
LEC Headquarters 33/11kV	9,654	10,572	11,714	13,138	14,914
Ha Lejone 132/66/11kV	1,993	2,210	4,546	5,483	6,456
Kolo Mine 33/11kV	0	2,000	2,000	2,000	2,000
Leloaleng (Quthing) 33/11kV	2,017	1,642	2,058	2,567	2,975
Lemphane Mine 88/11kV	0	0	4,000	6,000	6,000
Letseng Mine 88/33kV	11,578	11,694	11,829	11,983	12,163
Liqhobang 132/11kV	12,976	12,976	12,976	12,976	12,976
Mabote 33/11kV	7,741	9,105	10,362	11,640	12,975
Mafeteng 33/11kV	5,277	7,159	8,913	11,286	14,386
Mahlasela 88/11kV	974	998	1,023	1,048	1,074
Maputsoe 33/11kV	5,610	6,507	7,625	9,019	10,756
Maseru Central 33/11kV	11,943	12,693	13,625	14,789	16,239
Matsoku 66/11kV	50	50	50	50	50
Mazenod 33/11kV	3,740	4,741	5,708	6,608	7,613
Metolong 33/11kV	4,138	4,772	5,771	6,594	9,106
Mohale's Hoek 11kV	4,750	6,206	7,696	9,321	11,518
Morija 33/11kV	1,685	3,074	4,223	5,537	7,793
Mothae Mine 88/11kV	0	10,000	10,000	10,000	10,000
Muela 33/11kV	127	127	403	851	1,203
Ngoajane 33/11kV	200	419	788	1,210	1,560
Pioneer 33/11kV	17,050	17,720	18,463	19,390	20,546
Pitseng 66/11kV	2,120	4,112	6,449	8,954	11,428
Pohali Dam 88kV	0	20,000	0	0	0
Ramathole	1,189	1,805	2,386	3,092	3,685
Roma 33/11kV	6,417	3,869	4,644	5,622	6,920
St Agnes 33/11kV	4,181	4,867	5,638	6,569	7,639
Thaba Tseka 33/11kV	1,552	1,936	2,330	2,810	3,369
Thetsane 33/11kV	21,447	24,880	29,152	34,482	41,125
Tikoe 33/11kV	7,865	91,58	11,212	13,280	16,027
Tlokoeng 33kV	1,520	2,614	3,551	4,530	5,554
Ts'ehlanyane/Hlotse Adit 66/11kV	289	328	372	421	478
Tsosane 33/11kV	6,894	7,720	8,798	9,701	10,796
Ramabanta (Makhalaneng) 132/11kV	0	3,869	4,644	5,622	6,920
Semokong 132/11kV	0	1,200	1,391	1,613	1,870

Substation	Demand [kVA]				
	Year 0	Year 5	Year 10	Year 15	Year 20
Qacha's Nek	0	1,600	1,700	1,900	2,100
Ha Mosi 132/11kV	0	1,642	2,058	2,567	2,975
Hlotse 33/11kV	6,448	7,480	8,764	9,894	11,597

7.2 LOAD FLOW RESULTS

7.2.1 Present Situation

No voltage or thermal violations were observed. The load flow results under normal conditions are shown in **Error! Reference source not found.**.

7.2.2 Year 5

The following LEC expansion projects are implemented:

- Mazendod – Qacha's Nek
  - 230km x 132kV double circuit line between Mazendod and Qacha's Nek
  - New 132/33/11kV Ramabanta (Makhalaneng) substation
  - New 132/33/11kV Semonkong substation
  - New 132/33/11kV Ha Mosi substation
  - New 132/33kV Ha Mpiti substation
- Mazendod – Thetsane
  - 25km x 132kV single circuit line between Mazendod and Thetsane
  - New 132/33kV Thetsane substation
- Khukhune-Ha Belo
  - 30km x 132kV single circuit line between Khukhune and Ha Belo
- 55km x 132kV single circuit line between Mazendod and Mafeteng
- Add 2x30MVA transformers at Ramarothole substation
- Letseng – Mothae
  - 25km x 88kV single circuit line between Letseng and Mothae
  - New Mothae 88/11kV substation
- Maputsoe – Mapoteng
  - 30km x 33kV single circuit line between Maputsoe and Mapoteng
  - New Mapoteng 33/11kV substation
- Morija – Kolo
  - 25km x 33kV single circuit line between Morija and Kolo
  - New Kolo 33/11kV substation
- Letseng – Mothae
  - 25km x 88kV single circuit line between Letseng and Mothae
  - New Mothae mine 88kV substation
- Mothae - Lemphane
  - 11km x 88kV single circuit line between Mothae and Lemphane
  - New Lemphane mine 88kV substation

The additions to the network, as listed above, are shown geographically in **Error! Reference source not found.**.

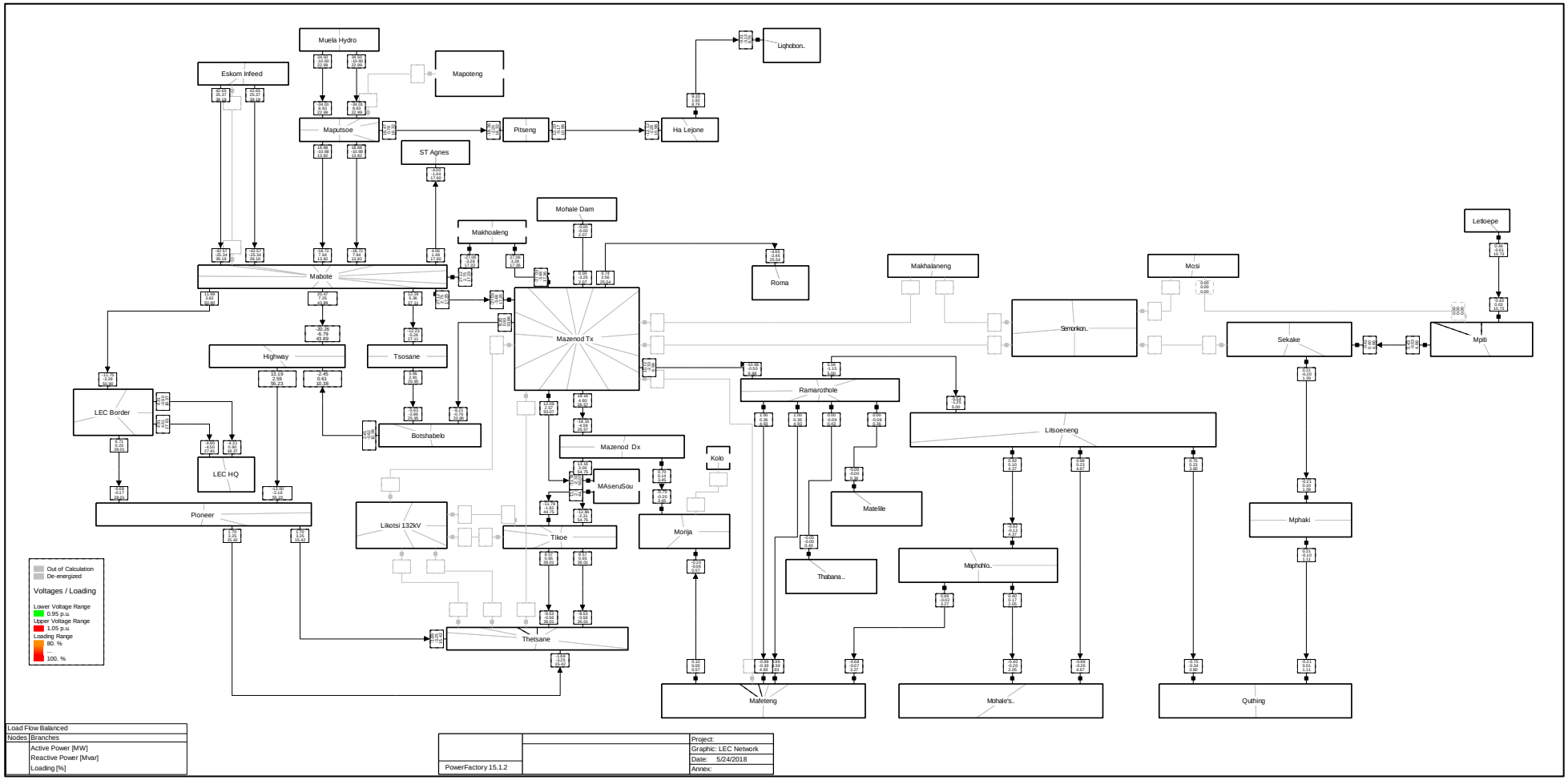


Figure 16: Present Load Flow Results

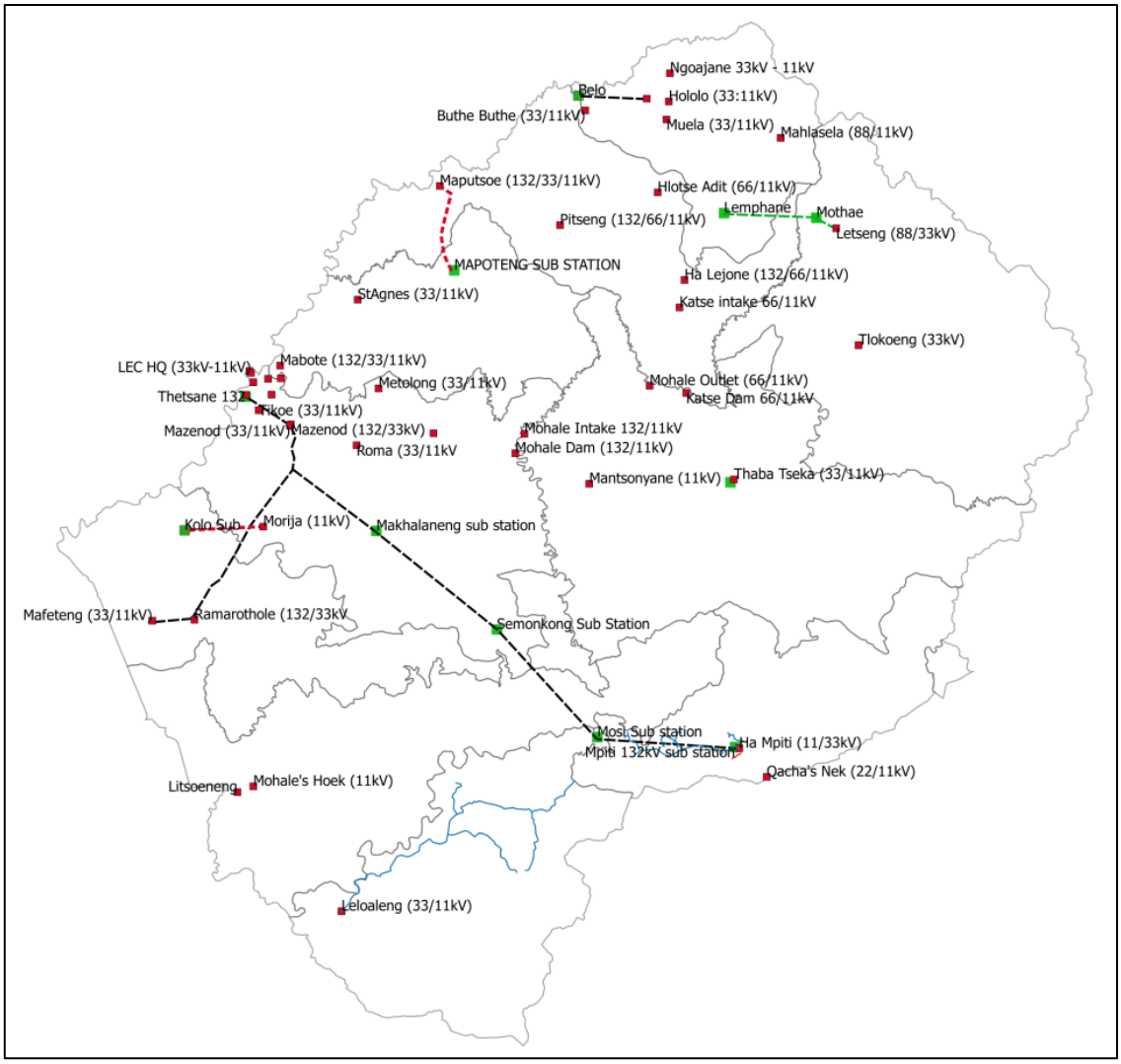


Figure 17: Network Extension by Year 5 (According to LEC Expansion Plan)

Load flow simulations were carried out with the network additions in **Error! Reference source not found.**. The thermal violations in Table 12 were observed.

Table 12: Year 5 Thermal Violations

Transformer	Rated Capacity	Load Level
Morija 33/11kV	2MVA	152%

The following upgrade/s were implemented to solve the violations:

- The existing 2MVA transformer at Morija substation was replaced with a 10MVA unit to cater for the demand in 20 years of 8MVA.

The load flow results under normal conditions following the above addition are shown in **Error! Reference source not found.**.

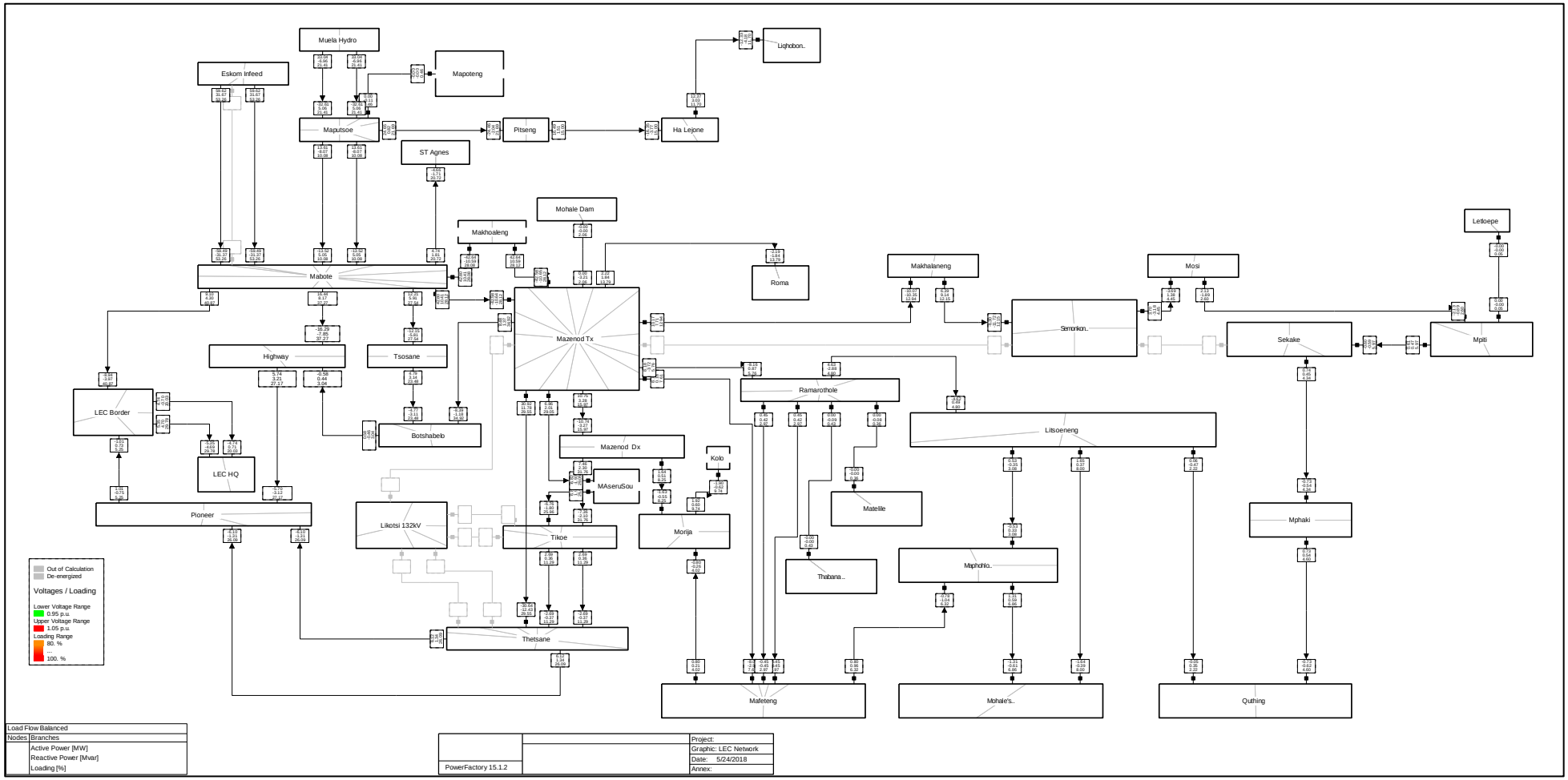


Figure 18: Year 5 Load Flow Results

7.2.3 Year 10

The following LEC expansion projects are implemented:

- Katse – Thaba Tseka
  - 50km x 66kV single circuit line between Katse and Thaba Tseka
  - New 66/33/11kV Thaba Tseka substation
- Thaba Tseka - Makunyapane
  - 40km x 66kV single circuit line between Thaba Tseka and Makunyapane
  - New 66/11kV Makunyapane substation
- Makunyapane - Sehong-hong
  - 40km x 66kV single circuit line between Makunyapane and Sehong-hong
  - New 66/11kV Sehong-hong substation

The additions to the network, as listed above, are shown geographically in **Error! Reference source not found.**.

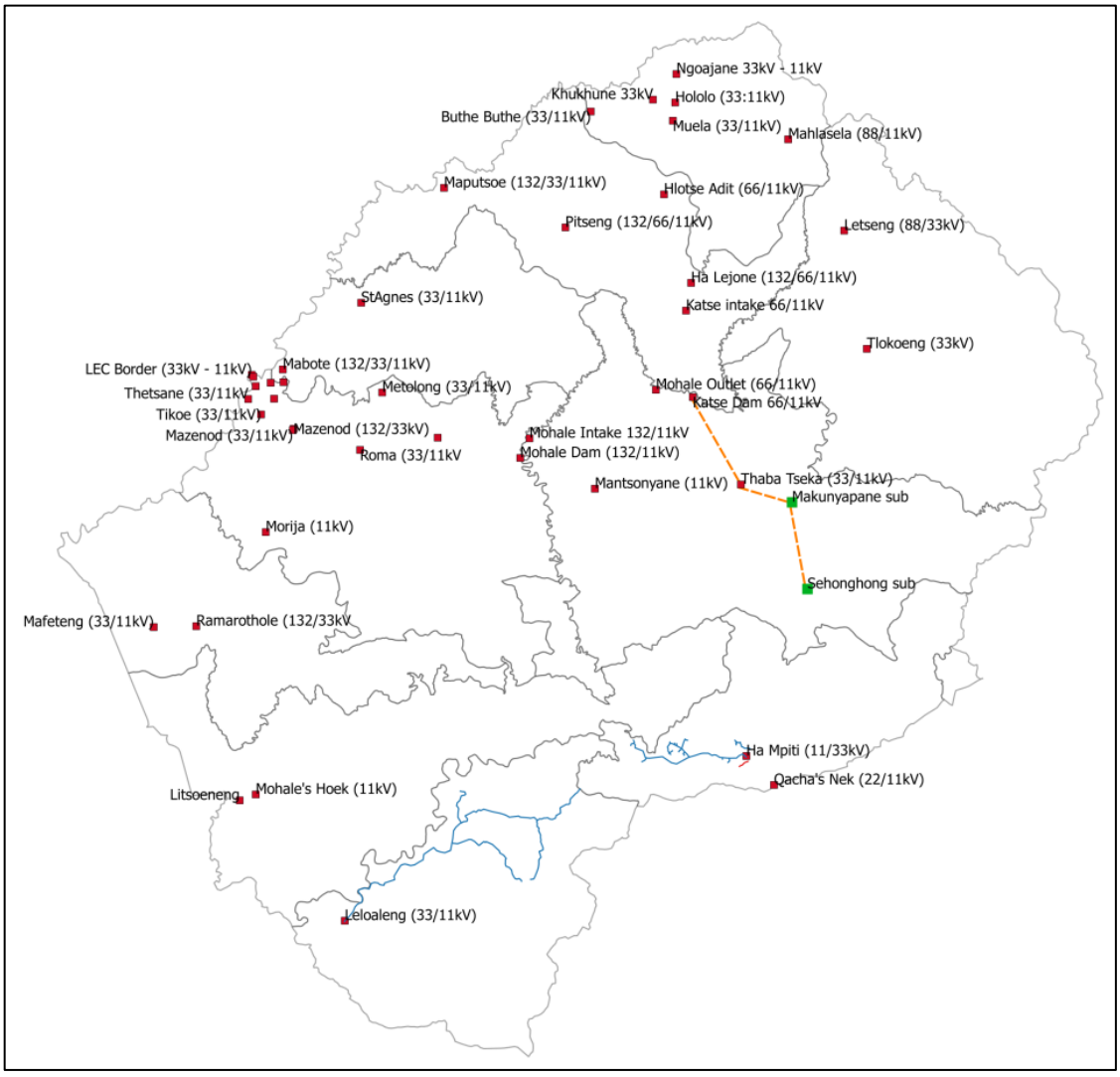


Figure 19: Network Extension by Year 10 (According to LEC Expansion Plan)

Load flow simulations were carried out with the network additions in **Error! Reference source not found.**. The thermal violations in Table 13 were observed.

Table 13: Year 10 Thermal Violations

Transformer	Rated Capacity	Load Level
Mazendod Dx 33/11kV	5MVA	117%

The following upgraded were implemented to solve the violations:

- The existing 5MVA transformer at Mazenod Dx 33/11kV substation was upgraded to a 10MVA unit to cater for the demand in 20 years of 8MVA.

The load flow results under normal conditions following the above addition is shown in **Error! Reference source not found.**.

7.2.4 Year 15

The thermal violations in Table 14 were observed under normal conditions.

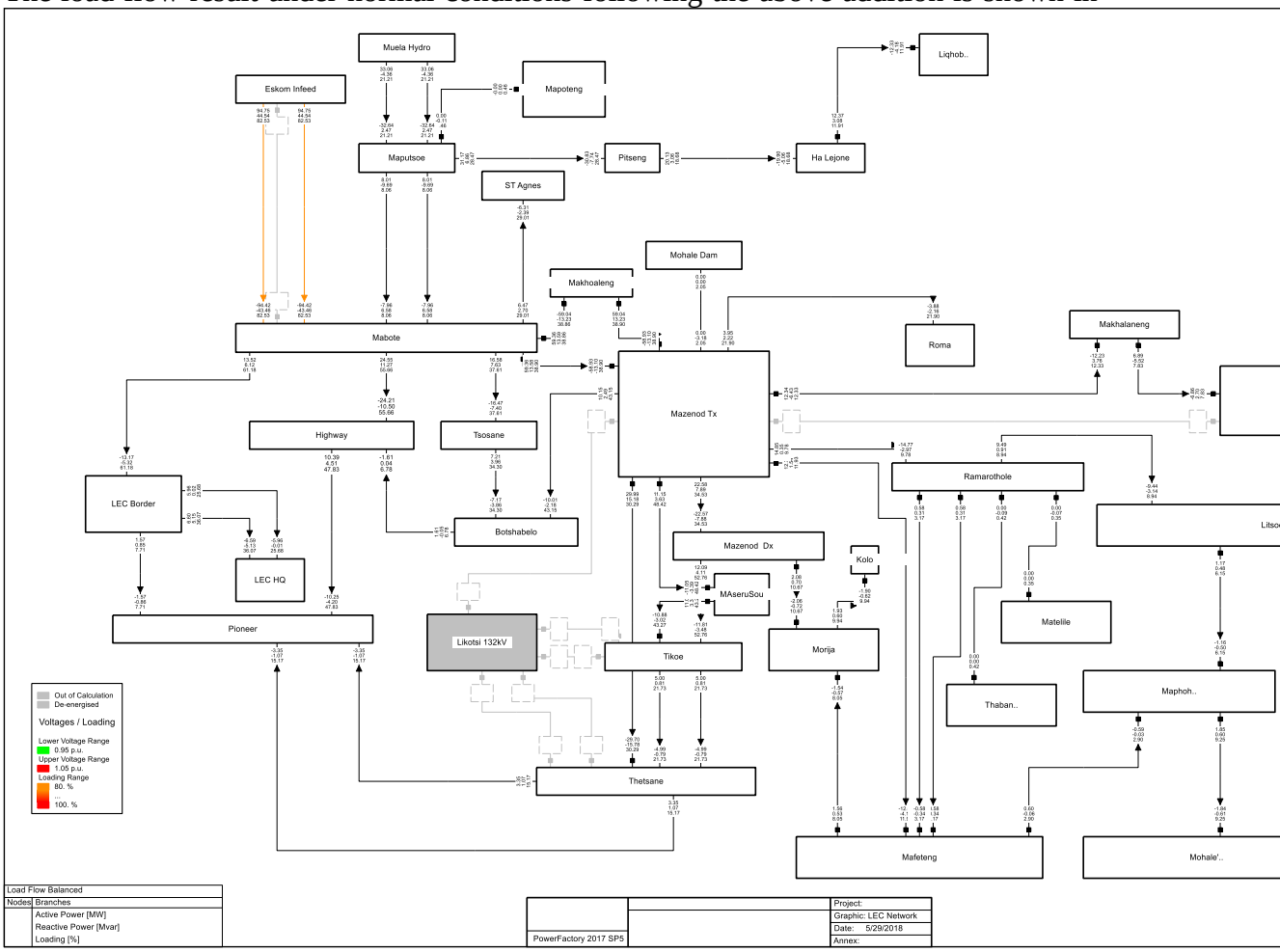
Table 14: Year 15 Thermal Violations

Transformer	Rated Capacity	Load Level
Pioneer 33/11kV (Tr1)	10MVA	105%
Pioneer 33/11kV (Tr2)	10MVA	102%
Butha Buthe 33/11kV (Tr1)	5MVA	111%
Butha Buthe 33/11kV (Tr2)	5MVA	111%
Mafeteng 33/11kV(Tr1)	5MVA	115%
Mafeteng 33/11kV(Tr2)	5MVA	115%

The following upgrade/s were implemented to solve the violations:

- An additional 10MVA transformer was added at Pioneer substation to cater for the demand in 20 years of 21MVA.
- The existing 2x5MVA transformers at Butha Buthe were replaced with a 1x20MVA unit to cater for the demand in 20 years of 11MVA.
- The existing 2x5MVA transformers at Mafeteng were replaced with a 1x20MVA unit to cater for the demand in 20 years of 14MVA.

The load flow result under normal conditions following the above addition is shown in



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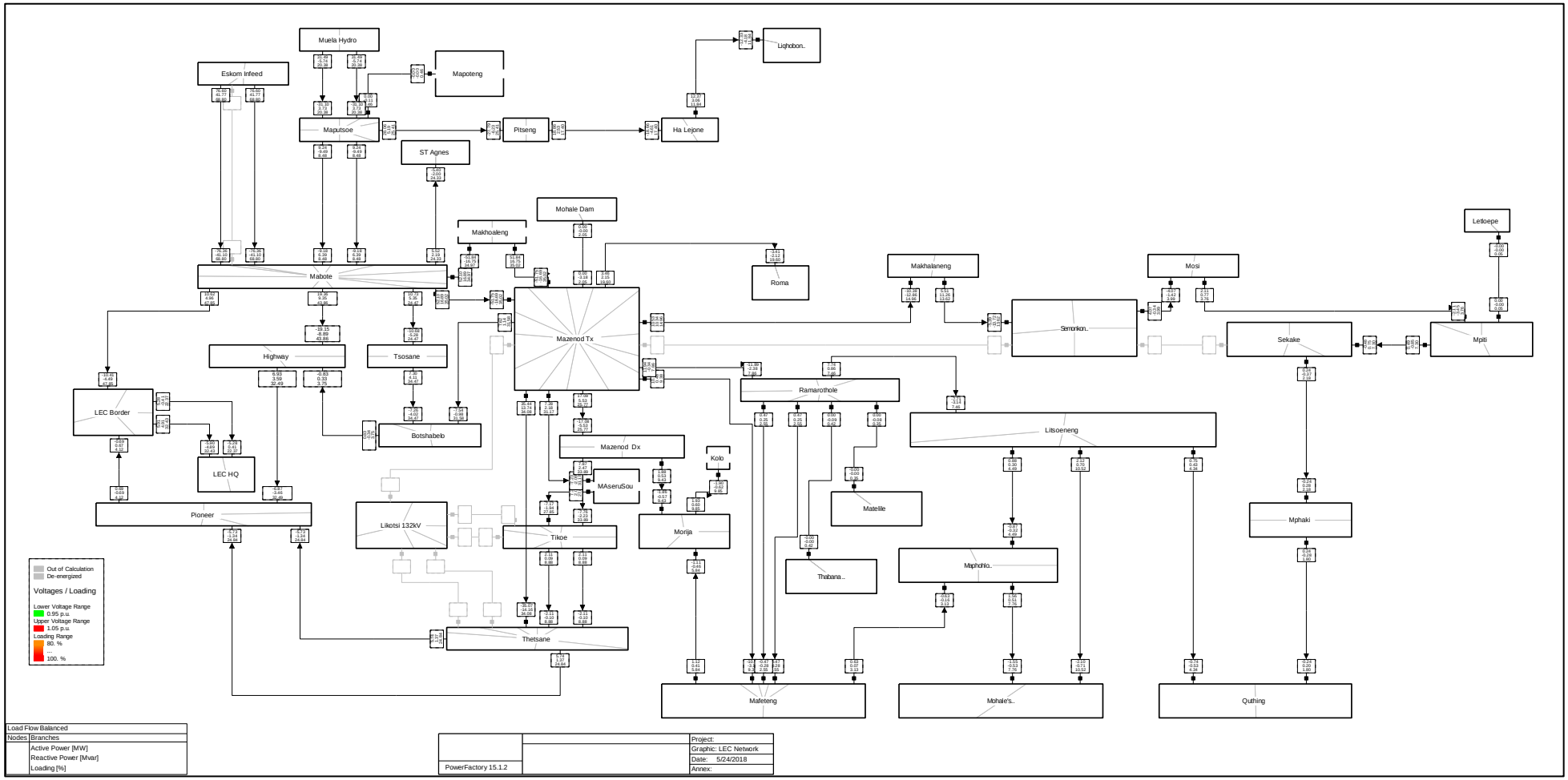

Figure 20: Year 10 Load Flow Results

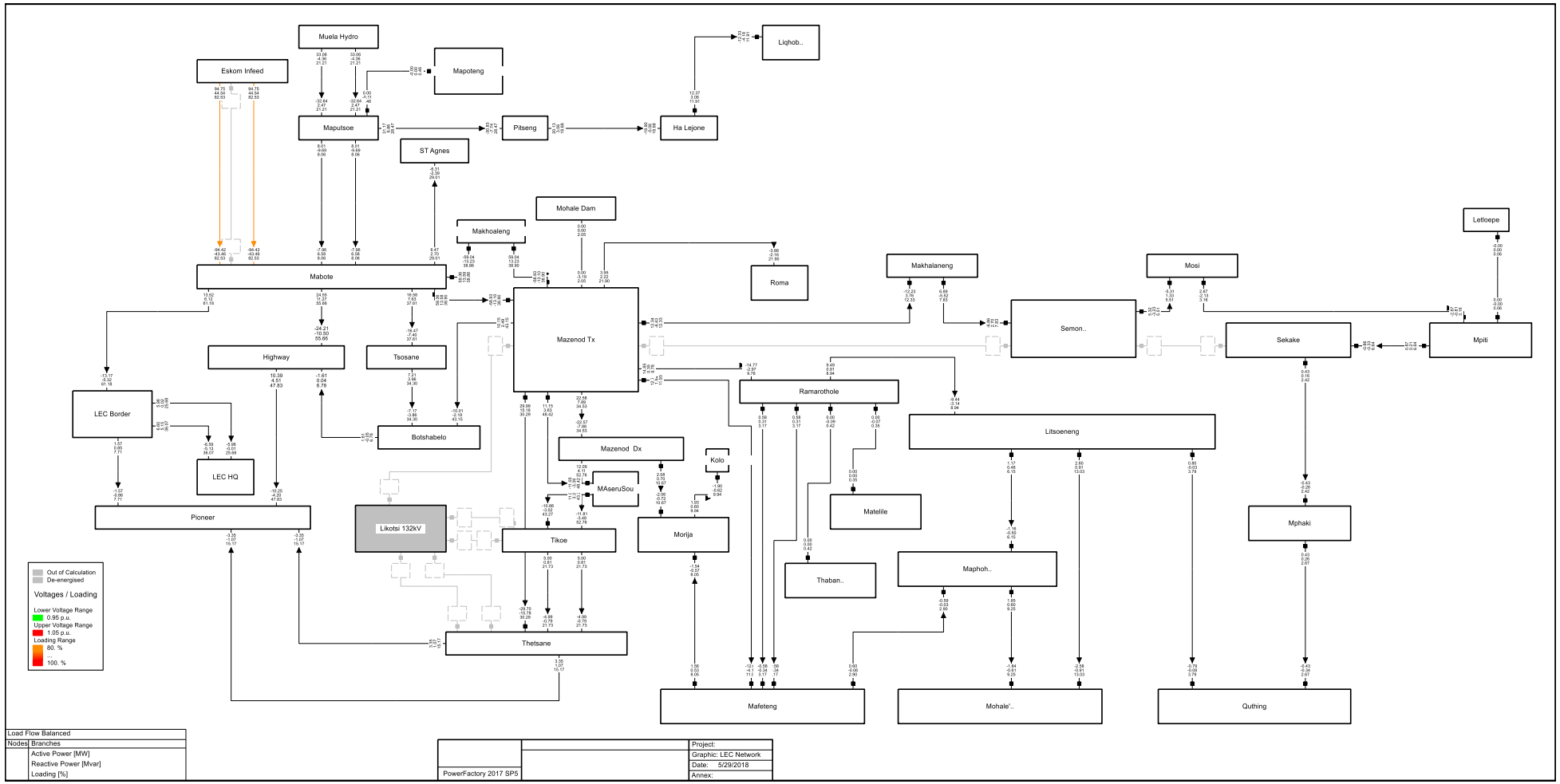

Figure 21: Year 15 Load Flow Results

7.2.5 Year 20

The thermal violations in Table 15 were observed under normal conditions.

Table 15: Year 20 Thermal Violations

Transformer	Rated Capacity	Load Level
Thetsane 33/11kV(Tr1)	20MVA	107%
Thetsane 33/11kV(Tr2)	20MVA	107%
Hlotse 33/11kV(Tr1)	5MVA	119%
Hlotse 33/11kV(Tr2)	5MVA	119%
Tsosane 33/11kV(Tr1)	5MVA	109%
Tsosane 33/11kV(Tr1)	5MVA	109%
Line	**Rated Capacity**	**Load Level**
Eskom – Mabote 1	121MVA	103%
Eskom – Mabote 2	121MVA	103%

The following upgrade/s were implemented to solve the violations:

- The existing 2x5MVA transformers at Hlotse were replaced with a 1x20MVA unit to cater for the demand in 20 years of 12MVA
- The existing 2x5MVA transformers at Tsoane were replaced with a 1x20MVA unit to cater for the demand in 20 years of 11MVA
- No further transformers can be added at Thetsane as this will increase the fault level on the 11kV busbar beyond 30kA. Based on the load flow studies the substation needs to be deloaded by approximately 3MVA. It is proposed that load is transferred from Thetsane to neighbouring substations, namely Tikoe, Botshabelo and Pioneer.

The load flow results under normal conditions following the above addition is shown in **Error! Reference source not found.**.

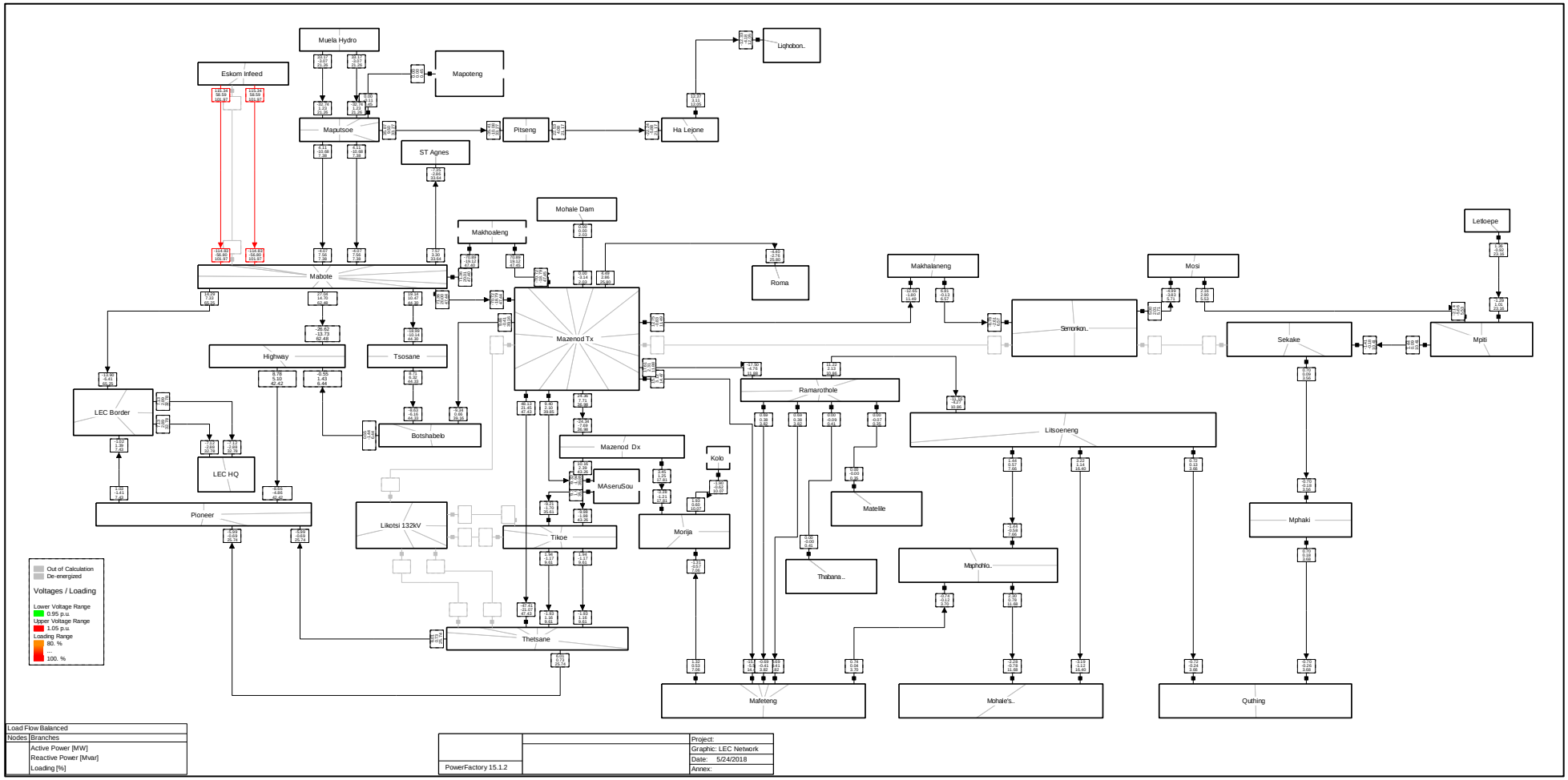

Figure 22: Year 20 Load Flow Results

8 ANNEX

8.1 ANNUAL GRID ELECTRIFICATION ROLL-OUT SCHEDULE

YEAR 1			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	06600443032	Mohale's Hoek	1,575,000
2	10730233004	Thaba-Tseka	1,125,000
3	02171012017	Leribe	1,365,000
4	10750432074	Thaba-Tseka	1,905,000
5	09800433015	Mokhotlong	1,605,000
6	03260713038	Berea	1,365,000
7	05520512031	Mafeteng	1,200,000
8	01010123024	Botha-Bothe	2,475,000
9	06600443043	Mohale's Hoek	1,500,000
10	01040413033	Botha-Bothe	1,815,000
11	07640641022	Quthing	1,575,000
12	03210313042	Berea	1,245,000
13	06590343042	Mohale's Hoek	1,695,000
14	06560113027	Mohale's Hoek	1,635,000
15	03260713036	Berea	1,200,000
16	02120713027	Leribe	1,980,000
17	03190123022	Berea	1,290,000
18	02080313009	Leribe	1,065,000
19	02060133022	Leribe	2,340,000
20	02100513021	Leribe	2,565,000
21	08710333024	Qacha's Nek	1,260,000
22	01010123043	Botha-Bothe	1,095,000
23	07650641010	Quthing	1,695,000
24	06590343024	Mohale's Hoek	2,115,000
25	02090413040	Leribe	2,160,000
26	04440712035	Maseru	1,545,000
27	02080313021	Leribe	1,380,000

YEAR 1			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	05480113026	Mafeteng	1,680,000
29	01020213001	Botha-Bothe	1,230,000
30	01020213034	Botha-Bothe	1,725,000
31	04440712034	Maseru	1,275,000
32	05520512037	Mafeteng	1,605,000
33	02090413019	Leribe	1,605,000
34	08700243037	Qacha's Nek	1,620,000
35	05510412034	Mafeteng	2,865,000
36	07640641015	Quthing	1,230,000
37	04450813057	Maseru	1,230,000
38	05530613024	Mafeteng	1,740,000
39	03250613017	Berea	1,560,000
40	05510413047	Mafeteng	1,290,000
41	02171013029	Leribe	1,725,000
42	04420513079	Maseru	1,380,000
43	02110613009	Leribe	1,620,000
44	02120713034	Leribe	1,965,000
45	03260713057	Berea	1,410,000
46	02060133053	Leribe	1,785,000
47	02060133054	Leribe	1,560,000
48	10740631016	Thaba-Tseka	2,610,000
49	01010123025	Botha-Bothe	2,070,000
50	06600443031	Mohale's Hoek	1,860,000
51	08690142057	Qacha's Nek	1,575,000
52	02080313017	Leribe	1,875,000
53	06590313008	Mohale's Hoek	1,575,000
54	06560113012	Mohale's Hoek	2,190,000

YEAR 1			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	04420513080	Maseru	1,425,000
56	07650641055	Quthing	1,605,000
57	03210313007	Berea	1,920,000
58	05510413048	Mafeteng	1,455,000
59	06560113040	Mohale's Hoek	2,025,000
60	06590343020	Mohale's Hoek	1,815,000
61	08690142060	Qacha's Nek	1,980,000
62	03260713047	Berea	1,665,000
63	10750433067	Thaba-Tseka	1,875,000
64	09790531006	Mokhotlong	1,290,000
65	04380113005	Maseru	2,460,000
66	01010123035	Botha-Bothe	2,145,000
67	03230513056	Berea	1,545,000
68	05480113008	Mafeteng	1,800,000
69	05500322023	Mafeteng	2,295,000
70	03190123033	Berea	2,055,000
TOTAL INVESTMENT - YEAR 1			119,805,000

YEAR 2			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	02120713017	Leribe	1,785,000
2	09780233076	Mokhotlong	1,290,000
3	02060133060	Leribe	2,580,000
4	02151311083	Leribe	1,890,000
5	01020213046	Botha-Bothe	1,995,000
6	02090413028	Leribe	1,905,000
7	09770133015	Mokhotlong	2,265,000
8	02100513032	Leribe	2,340,000
9	04390213025	Maseru	1,695,000
10	02140813042	Leribe	1,995,000
11	05500322022	Mafeteng	2,595,000
12	05540713007	Mafeteng	1,815,000
13	05480113039	Mafeteng	1,935,000
14	06570811004	Mohale's Hoek	1,275,000
15	01010113027	Botha-Bothe	1,395,000
16	07660343006	Quthing	1,005,000
17	02070223004	Leribe	2,205,000
18	09790531002	Mokhotlong	1,125,000
19	03220413016	Berea	2,340,000
20	04460923009	Maseru	1,335,000
21	01040413038	Botha-Bothe	2,385,000
22	04390213038	Maseru	2,175,000
23	01050511026	Botha-Bothe	1,875,000
24	06560113015	Mohale's Hoek	1,470,000
25	01020213002	Botha-Bothe	1,185,000
26	05500313011	Mafeteng	2,865,000
27	02140813040	Leribe	2,265,000

YEAR 2			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	06590343016	Mohale's Hoek	1,410,000
29	07640143038	Quthing	1,230,000
30	09780233067	Mokhotlong	1,920,000
31	05490213034	Mafeteng	1,425,000
32	07660343004	Quthing	1,560,000
33	08690143048	Qacha's Nek	2,250,000
34	09770133037	Mokhotlong	2,190,000
35	06560113029	Mohale's Hoek	1,125,000
36	10720132049	Thaba-Tseka	1,125,000
37	06590343019	Mohale's Hoek	1,125,000
38	07640143035	Quthing	1,125,000
39	06570213057	Mohale's Hoek	1,755,000
40	01050511098	Botha-Bothe	1,200,000
41	03190123021	Berea	1,140,000
42	01010113019	Botha-Bothe	2,175,000
43	06610523042	Mohale's Hoek	1,155,000
44	02120713022	Leribe	1,890,000
45	06560113024	Mohale's Hoek	1,635,000
46	02120713007	Leribe	1,845,000
47	08710431020	Qacha's Nek	990,000
48	02120713032	Leribe	1,140,000
49	02131211009	Leribe	1,365,000
50	05530613055	Mafeteng	1,770,000
51	06590343017	Mohale's Hoek	1,650,000
52	06560113039	Mohale's Hoek	1,650,000
53	06560113035	Mohale's Hoek	1,530,000
54	09770133058	Mokhotlong	1,350,000

YEAR 2			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	05480113042	Mafeteng	1,995,000
56	05490213038	Mafeteng	1,575,000
57	05490213020	Mafeteng	1,080,000
58	07640143031	Quthing	1,755,000
59	02140813025	Leribe	2,055,000
60	05500322026	Mafeteng	1,095,000
61	02060133043	Leribe	1,110,000
62	07670442054	Quthing	1,350,000
63	09790531008	Mokhotlong	1,650,000
64	05520523009	Mafeteng	1,650,000
65	06570811047	Mohale's Hoek	1,125,000
66	08700243034	Qacha's Nek	1,740,000
67	02120713033	Leribe	1,830,000
68	02080313028	Leribe	1,920,000
69	03230513040	Berea	1,860,000
70	04380113083	Maseru	2,730,000
71	04390223015	Maseru	1,410,000
72	08710431019	Qacha's Nek	1,170,000
TOTAL INVESTMENT - YEAR 2			**120,810,000**

YEAR 3			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	04460923038	Maseru	1,170,000
2	05480113041	Mafeteng	1,635,000
3	05480113004	Mafeteng	1,635,000
4	03260713041	Berea	1,335,000
5	01030323032	Botha-Bothe	2,505,000
6	06610523031	Mohale's Hoek	1,425,000
7	07640143032	Quthing	2,055,000
8	09790531043	Mokhotlong	1,650,000
9	04450823068	Maseru	1,020,000
10	05480112019	Mafeteng	1,350,000
11	02171013022	Leribe	1,350,000
12	02171013045	Leribe	2,070,000
13	07660343005	Quthing	2,070,000
14	05510413057	Mafeteng	1,755,000
15	05520513004	Mafeteng	1,860,000
16	05480113037	Mafeteng	1,695,000
17	04420513072	Maseru	1,470,000
18	05540713063	Mafeteng	1,215,000
19	05510413037	Mafeteng	1,785,000
20	05540713011	Mafeteng	1,875,000
21	04380113004	Maseru	1,230,000
22	02060133048	Leribe	1,230,000
23	05520523012	Mafeteng	1,230,000
24	01010123034	Botha-Bothe	2,145,000
25	05510413043	Mafeteng	1,725,000
26	05480113022	Mafeteng	1,815,000
27	05510413045	Mafeteng	1,905,000

YEAR 3			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	10720133056	Thaba-Tseka	1,245,000
29	02181113001	Leribe	1,650,000
30	05530613049	Mafeteng	1,740,000
31	04450813011	Maseru	1,080,000
32	06610523043	Mohale's Hoek	1,425,000
33	02171013052	Leribe	1,260,000
34	08700243035	Qacha's Nek	1,260,000
35	07660343014	Quthing	1,260,000
36	02171013036	Leribe	1,590,000
37	05480113033	Mafeteng	1,590,000
38	03260713040	Berea	1,530,000
39	06590313004	Mohale's Hoek	1,770,000
40	03260713002	Berea	1,095,000
41	02151311002	Leribe	1,095,000
42	02060133030	Leribe	1,095,000
43	01010113021	Botha-Bothe	1,950,000
44	05500313005	Mafeteng	1,275,000
45	07640641003	Quthing	1,275,000
46	03210313003	Berea	1,605,000
47	01030313002	Botha-Bothe	1,605,000
48	05510413038	Mafeteng	1,605,000
49	01050511015	Botha-Bothe	1,605,000
50	05530613004	Mafeteng	1,605,000
51	04440713001	Maseru	1,785,000
52	06590313007	Mohale's Hoek	1,455,000
53	07660343010	Quthing	1,620,000
54	02080313013	Leribe	1,620,000

YEAR 3			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	09780233077	Mokhotlong	1,620,000
56	01020213011	Botha-Bothe	1,620,000
57	02181113052	Leribe	1,800,000
58	08690143053	Qacha's Nek	1,290,000
59	05520523020	Mafeteng	1,290,000
60	05530613012	Mafeteng	1,290,000
61	02090413006	Leribe	1,710,000
62	05490213044	Mafeteng	1,635,000
63	02080323038	Leribe	1,635,000
64	02100513018	Leribe	1,635,000
65	03260713022	Berea	1,635,000
66	05530613010	Mafeteng	2,085,000
67	04430613047	Maseru	1,815,000
68	05540713010	Mafeteng	1,815,000
69	02140813045	Leribe	1,995,000
70	09800433021	Mokhotlong	2,175,000
71	08690143063	Qacha's Nek	1,125,000
72	09780233060	Mokhotlong	1,305,000
73	08690431041	Qacha's Nek	1,485,000
74	04430613049	Maseru	1,650,000
75	05520523008	Mafeteng	1,650,000
76	03260713035	Berea	1,650,000
TOTAL INVESTMENT - YEAR 3			**119,805,000**

YEAR 4			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	02131211029	Leribe	1,650,000
2	02070223019	Leribe	1,500,000
3	02100523042	Leribe	1,320,000
4	03270813060	Berea	1,140,000
5	04380113075	Maseru	1,665,000
6	02100513001	Leribe	1,665,000
7	04420513060	Maseru	1,665,000
8	02171013038	Leribe	1,665,000
9	05480113044	Mafeteng	1,665,000
10	05500323031	Mafeteng	1,515,000
11	02140813036	Leribe	1,335,000
12	06590343023	Mohale's Hoek	1,335,000
13	04380113077	Maseru	2,685,000
14	06560113004	Mohale's Hoek	2,505,000
15	02070223039	Leribe	1,695,000
16	08700243038	Qacha's Nek	1,695,000
17	06580811085	Mohale's Hoek	1,350,000
18	09790531007	Mokhotlong	1,350,000
19	02080323037	Leribe	1,350,000
20	05500323032	Mafeteng	1,350,000
21	08700243030	Qacha's Nek	1,890,000
22	02100513005	Leribe	1,710,000
23	01010113022	Botha-Bothe	1,710,000
24	02120713038	Leribe	1,710,000
25	06560113005	Mohale's Hoek	1,710,000
26	06570213059	Mohale's Hoek	1,545,000
27	05520512027	Mafeteng	1,365,000

YEAR 4			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	02141211011	Leribe	1,365,000
29	04410423093	Maseru	1,365,000
30	03260713039	Berea	1,365,000
31	02090413042	Leribe	1,725,000
32	02080313027	Leribe	1,725,000
33	01010123036	Botha-Bothe	1,560,000
34	09800433009	Mokhotlong	1,560,000
35	02090413026	Leribe	1,185,000
36	04410423090	Maseru	1,185,000
37	05520513039	Mafeteng	1,185,000
38	01040413011	Botha-Bothe	2,025,000
39	10720133031	Thaba-Tseka	1,380,000
40	07670443044	Quthing	1,380,000
41	06600443033	Mohale's Hoek	1,380,000
42	06600413003	Mohale's Hoek	1,380,000
43	07650641002	Quthing	1,380,000
44	06590343037	Mohale's Hoek	1,380,000
45	04380113082	Maseru	1,380,000
46	06590313014	Mohale's Hoek	1,740,000
47	01010113023	Botha-Bothe	1,740,000
48	06600443048	Mohale's Hoek	1,740,000
49	04440713025	Maseru	1,575,000
50	04400323061	Maseru	1,200,000
51	02080323030	Leribe	1,200,000
52	05510412033	Mafeteng	1,395,000
53	02100513007	Leribe	1,395,000
54	05540713006	Mafeteng	1,395,000

YEAR 4			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	03220413014	Berea	1,395,000
56	04450813058	Maseru	1,575,000
57	03220413003	Berea	1,575,000
58	03260713010	Berea	1,305,000
59	07640641023	Quthing	1,770,000
60	04410413081	Maseru	1,770,000
61	05520513044	Mafeteng	1,770,000
62	04460913007	Maseru	1,770,000
63	04400323055	Maseru	1,215,000
64	03260713058	Berea	1,215,000
65	04400323056	Maseru	1,215,000
66	04460913002	Maseru	1,215,000
67	09780233069	Mokhotlong	1,410,000
68	02090413010	Leribe	1,410,000
69	04440713024	Maseru	2,070,000
70	03260713021	Berea	1,590,000
71	07660641013	Quthing	1,785,000
72	02160913078	Leribe	1,785,000
73	01030323025	Botha-Bothe	1,785,000
74	05540713061	Mafeteng	1,785,000
75	06600443047	Mohale's Hoek	1,980,000
76	09780233058	Mokhotlong	1,125,000
77	04390213003	Maseru	2,085,000
TOTAL INVESTMENT - YEAR 4			119,625,000

YEAR 5			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	01030323017	Botha-Bothe	1,230,000
2	05540713054	Mafeteng	1,800,000
3	07670443045	Quthing	1,800,000
4	10740631008	Thaba-Tseka	1,605,000
5	03250613004	Berea	1,605,000
6	03190123041	Berea	1,605,000
7	05530613025	Mafeteng	1,605,000
8	04440713010	Maseru	2,370,000
9	01030323033	Botha-Bothe	2,685,000
10	02110511024	Leribe	1,815,000
11	04400323066	Maseru	1,245,000
12	06600443037	Mohale's Hoek	1,245,000
13	04410423095	Maseru	1,245,000
14	03250613019	Berea	1,245,000
15	02181113018	Leribe	1,620,000
16	02100523015	Leribe	1,620,000
17	01040413037	Botha-Bothe	2,025,000
18	09770133034	Mokhotlong	1,725,000
19	06590343047	Mohale's Hoek	1,830,000
20	05530613057	Mafeteng	1,830,000
21	07660343001	Quthing	1,455,000
22	06560113041	Mohale's Hoek	1,455,000
23	05490213013	Mafeteng	1,635,000
24	03250613026	Berea	1,260,000
25	07650641029	Quthing	1,260,000
26	01040413039	Botha-Bothe	1,845,000
27	09780233066	Mokhotlong	2,430,000

YEAR 5			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	05500322025	Mafeteng	1,470,000
29	04430612037	Maseru	1,470,000
30	01020213013	Botha-Bothe	1,470,000
31	07670443051	Quthing	1,470,000
32	06560113017	Mohale's Hoek	1,470,000
33	05490213036	Mafeteng	1,650,000
34	06560113037	Mohale's Hoek	2,055,000
35	04390223063	Maseru	1,275,000
36	03250613022	Berea	1,275,000
37	05530613048	Mafeteng	1,860,000
38	02181113033	Leribe	1,860,000
39	07650641051	Quthing	1,665,000
40	02060133064	Leribe	1,665,000
41	10720133052	Thaba-Tseka	1,665,000
42	04431111025	Maseru	1,485,000
43	02140813041	Leribe	1,875,000
44	09780233061	Mokhotlong	1,875,000
45	02151311056	Leribe	1,290,000
46	04450813059	Maseru	1,290,000
47	03220413007	Berea	1,290,000
48	04460923040	Maseru	1,290,000
49	01010123041	Botha-Bothe	1,290,000
50	02070223030	Leribe	1,680,000
51	03200213055	Berea	1,680,000
52	01020223017	Botha-Bothe	1,500,000
53	09780233075	Mokhotlong	1,500,000
54	05500313017	Mafeteng	1,695,000

YEAR 5			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	02060133027	Leribe	1,695,000
56	08700243041	Qacha's Nek	1,695,000
57	08700243040	Qacha's Nek	1,695,000
58	03230513055	Berea	1,695,000
59	02080313020	Leribe	1,695,000
60	06590343031	Mohale's Hoek	1,305,000
61	07650641032	Quthing	1,305,000
62	04440713042	Maseru	1,305,000
63	04440713004	Maseru	1,905,000
64	06610513041	Mohale's Hoek	1,905,000
65	01020223021	Botha-Bothe	1,590,000
66	05480113010	Mafeteng	1,590,000
67	05520523015	Mafeteng	1,515,000
68	01010123044	Botha-Bothe	1,515,000
69	02070223043	Leribe	1,515,000
70	03210313055	Berea	1,200,000
71	06580811014	Mohale's Hoek	1,710,000
72	02100513024	Leribe	1,710,000
73	06560113003	Mohale's Hoek	1,710,000
74	02171013033	Leribe	2,625,000
TOTAL INVESTMENT - YEAR 5			**120,030,000**

YEAR 6			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	02070223037	Leribe	2,130,000
2	09780233065	Mokhotlong	1,605,000
3	05490213040	Mafeteng	1,605,000
4	06610523024	Mohale's Hoek	1,605,000
5	03241011085	Berea	1,320,000
6	05540713066	Mafeteng	1,320,000
7	06580811080	Mohale's Hoek	1,320,000
8	01020213009	Botha-Bothe	1,530,000
9	06600443040	Mohale's Hoek	1,530,000
10	02181113030	Leribe	2,145,000
11	06610523020	Mohale's Hoek	1,935,000
12	02171013041	Leribe	2,040,000
13	05530613028	Mafeteng	1,830,000
14	05480113040	Mafeteng	1,620,000
15	01030323031	Botha-Bothe	1,545,000
16	08700243042	Qacha's Nek	1,545,000
17	03200213005	Berea	1,740,000
18	02080313011	Leribe	2,355,000
19	01040413024	Botha-Bothe	1,560,000
20	05540713019	Mafeteng	1,965,000
21	05490213017	Mafeteng	1,965,000
22	05490212046	Mafeteng	1,965,000
23	03200213046	Berea	1,350,000
24	06610523034	Mohale's Hoek	1,350,000
25	01040413031	Botha-Bothe	1,755,000
26	04380113074	Maseru	3,210,000
27	02120713031	Leribe	1,860,000

YEAR 6			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	03190113003	Berea	1,650,000
29	02100513011	Leribe	1,650,000
30	02181113031	Leribe	1,980,000
31	01030323030	Botha-Bothe	2,085,000
32	03230513002	Berea	1,770,000
33	02110613007	Leribe	1,770,000
34	02080313004	Leribe	1,770,000
35	01020223026	Botha-Bothe	3,045,000
36	02171013027	Leribe	2,400,000
37	02070223006	Leribe	1,785,000
38	06570213056	Mohale's Hoek	2,415,000
39	02120713006	Leribe	2,115,000
40	05500313016	Mafeteng	2,010,000
41	03260713030	Berea	2,010,000
42	01010123037	Botha-Bothe	2,010,000
43	02060133017	Leribe	1,380,000
44	02181113004	Leribe	1,680,000
45	01020223025	Botha-Bothe	2,430,000
46	02131211099	Leribe	1,800,000
47	05510413039	Mafeteng	1,800,000
48	02080313008	Leribe	2,025,000
49	05540713013	Mafeteng	2,025,000
50	08690143054	Qacha's Nek	1,275,000
51	02090423035	Leribe	1,395,000
52	05540713020	Mafeteng	1,395,000
53	02100523036	Leribe	1,815,000
54	10740333052	Thaba-Tseka	2,040,000

YEAR 6			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	03230513034	Berea	2,040,000
56	04440713041	Maseru	2,460,000
57	02120713019	Leribe	2,460,000
58	05490213041	Mafeteng	2,265,000
59	06560113008	Mohale's Hoek	1,065,000
60	05480113005	Mafeteng	1,710,000
61	02060133040	Leribe	1,830,000
62	02140813049	Leribe	2,280,000
63	02090413030	Leribe	2,280,000
64	02171013026	Leribe	1,950,000
TOTAL INVESTMENT - YEAR 6			**119,565,000**

YEAR 7			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	04380113065	Maseru	2,070,000
2	02100513012	Leribe	2,070,000
3	04420513067	Maseru	1,845,000
4	04410413084	Maseru	1,845,000
5	02171013019	Leribe	1,305,000
6	04430613058	Maseru	1,080,000
7	07650641030	Quthing	1,080,000
8	01020213035	Botha-Bothe	2,505,000
9	03260713003	Berea	1,425,000
10	04390223018	Maseru	1,425,000
11	03220413018	Berea	1,425,000
12	05510413058	Mafeteng	855,000
13	04430613048	Maseru	1,740,000
14	02171013025	Leribe	1,740,000
15	03260713045	Berea	1,860,000
16	02090423036	Leribe	2,520,000
17	05490213016	Mafeteng	2,520,000
18	01050511088	Botha-Bothe	1,320,000
19	07660343002	Quthing	2,100,000
20	01040413026	Botha-Bothe	2,535,000
21	02060133042	Leribe	1,875,000
22	06590313002	Mohale's Hoek	1,095,000
23	05540713065	Mafeteng	1,095,000
24	02100513033	Leribe	1,890,000
25	03270813054	Berea	1,890,000
26	04390223058	Maseru	1,455,000
27	02120713002	Leribe	3,465,000

YEAR 7			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	01040413021	Botha-Bothe	2,565,000
29	05490213019	Mafeteng	2,130,000
30	02080313010	Leribe	2,010,000
31	10720133029	Thaba-Tseka	2,340,000
32	03250613011	Berea	1,905,000
33	02181113003	Leribe	1,905,000
34	02110613003	Leribe	1,905,000
35	01010123039	Botha-Bothe	1,905,000
36	04450813007	Maseru	1,470,000
37	09770133035	Mokhotlong	1,470,000
38	04410423087	Maseru	1,350,000
39	02120713004	Leribe	2,595,000
40	04460923039	Maseru	1,920,000
41	01040413040	Botha-Bothe	2,160,000
42	05520513042	Mafeteng	1,485,000
43	02140813037	Leribe	1,575,000
44	04440712023	Maseru	1,575,000
45	02070223003	Leribe	2,385,000
46	02140813029	Leribe	2,175,000
47	05480113021	Mafeteng	2,865,000
48	01040413010	Botha-Bothe	2,640,000
49	04380113078	Maseru	2,190,000
50	02100513034	Leribe	1,590,000
51	06610523026	Mohale's Hoek	1,140,000
52	03190123030	Berea	1,830,000
53	01040413019	Botha-Bothe	2,415,000
54	02100513029	Leribe	2,205,000

YEAR 7			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	05540713009	Mafeteng	2,205,000
56	01040423043	Botha-Bothe	2,205,000
57	06560113038	Mohale's Hoek	1,965,000
58	02100523041	Leribe	1,965,000
59	05530613029	Mafeteng	1,965,000
60	02100513031	Leribe	1,515,000
61	05520513045	Mafeteng	1,605,000
62	07670442057	Quthing	1,395,000
63	01040413028	Botha-Bothe	1,395,000
64	06630743065	Mohale's Hoek	1,155,000
65	03260713052	Berea	1,980,000
TOTAL INVESTMENT - YEAR 7			121,080,000

YEAR 8			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	06560113001	Mohale's Hoek	1,860,000
2	02070223017	Leribe	2,445,000
3	03260713025	Berea	1,530,000
4	04450812021	Maseru	1,530,000
5	10750433051	Thaba-Tseka	1,530,000
6	03230513037	Berea	1,620,000
7	02181113027	Leribe	1,410,000
8	10720132048	Thaba-Tseka	2,715,000
9	09770133033	Mokhotlong	1,635,000
10	07650641007	Quthing	1,635,000
11	01020213044	Botha-Bothe	1,635,000
12	05540713059	Mafeteng	1,635,000
13	02090413033	Leribe	1,635,000
14	02140813035	Leribe	1,545,000
15	02110613033	Leribe	1,545,000
16	04390213008	Maseru	1,545,000
17	04450813053	Maseru	1,545,000
18	04471033055	Maseru	1,545,000
19	08690431033	Qacha's Nek	1,545,000
20	04440713006	Maseru	2,010,000
21	04420513053	Maseru	2,475,000
22	03270813049	Berea	2,475,000
23	02100513028	Leribe	1,425,000
24	05540713067	Mafeteng	1,650,000
25	01010123029	Botha-Bothe	1,185,000
26	04440712038	Maseru	1,185,000
27	06570811009	Mohale's Hoek	1,185,000

YEAR 8			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	05520513001	Mafeteng	1,185,000
29	03260713032	Berea	1,185,000
30	03260713050	Berea	1,185,000
31	05480113038	Mafeteng	3,000,000
32	03250613001	Berea	1,905,000
33	02120713028	Leribe	2,040,000
34	04450813064	Maseru	2,040,000
35	09800433023	Mokhotlong	1,440,000
36	07670442058	Quthing	1,665,000
37	04380113068	Maseru	1,665,000
38	07660343009	Quthing	2,295,000
39	02120713041	Leribe	2,295,000
40	02060133019	Leribe	2,520,000
41	02100523037	Leribe	2,520,000
42	10750433069	Thaba-Tseka	2,055,000
43	03270813058	Berea	2,535,000
44	03260713061	Berea	2,535,000
45	02070213020	Leribe	2,535,000
46	06560113006	Mohale's Hoek	1,455,000
47	03230513003	Berea	1,680,000
48	01020223024	Botha-Bothe	2,415,000
49	02080313015	Leribe	1,695,000
50	02120713040	Leribe	1,695,000
51	05480113034	Mafeteng	1,695,000
52	01010113028	Botha-Bothe	1,215,000
53	05480113046	Mafeteng	2,430,000
54	04460923029	Maseru	2,565,000

YEAR 8			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	04440713046	Maseru	2,085,000
56	04440713045	Maseru	2,085,000
57	02181113012	Leribe	2,835,000
58	02140813047	Leribe	1,965,000
59	01030333058	Botha-Bothe	2,100,000
60	06580811089	Mohale's Hoek	1,485,000
61	04430613030	Maseru	1,230,000
62	06590313018	Mohale's Hoek	1,230,000
63	02151311001	Leribe	1,230,000
64	06560113016	Mohale's Hoek	1,230,000
65	01010123042	Botha-Bothe	1,230,000
66	04400323072	Maseru	975,000
TOTAL INVESTMENT - YEAR 8			**118,800,000**

YEAR 9			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	05540713058	Mafeteng	2,115,000
2	02171013047	Leribe	1,725,000
3	05510413027	Mafeteng	1,725,000
4	03250612033	Berea	1,725,000
5	01040413029	Botha-Bothe	2,475,000
6	01040413012	Botha-Bothe	2,250,000
7	04450813016	Maseru	2,130,000
8	02120713039	Leribe	1,995,000
9	04380113085	Maseru	3,240,000
10	09790333066	Mokhotlong	1,245,000
11	03260713046	Berea	1,245,000
12	04440712029	Maseru	1,245,000
13	01020223029	Botha-Bothe	1,740,000
14	02160913075	Leribe	1,740,000
15	07640641025	Quthing	1,740,000
16	02120713035	Leribe	1,740,000
17	06600413004	Mohale's Hoek	1,740,000
18	01020223049	Botha-Bothe	2,145,000
19	04430613046	Maseru	1,515,000
20	02120713036	Leribe	2,775,000
21	02120713014	Leribe	1,755,000
22	05520513047	Mafeteng	1,755,000
23	07640143028	Quthing	1,755,000
24	02090413020	Leribe	1,755,000
25	02080313029	Leribe	2,655,000
26	02060133057	Leribe	1,260,000
27	01020223048	Botha-Bothe	2,160,000

YEAR 9			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	06590343025	Mohale's Hoek	2,025,000
29	05500313002	Mafeteng	1,770,000
30	04420513062	Maseru	1,770,000
31	02080313002	Leribe	2,175,000
32	10720132050	Thaba-Tseka	2,175,000
33	10720133054	Thaba-Tseka	2,040,000
34	02160913080	Leribe	1,275,000
35	02080313049	Leribe	1,275,000
36	04410413006	Maseru	1,545,000
37	05480113035	Mafeteng	1,545,000
38	09800433013	Mokhotlong	1,785,000
39	05530613058	Mafeteng	1,785,000
40	03270813059	Berea	2,205,000
41	05530613020	Mafeteng	1,560,000
42	07640641001	Quthing	1,290,000
43	01030313004	Botha-Bothe	1,290,000
44	05490213039	Mafeteng	1,290,000
45	01020213014	Botha-Bothe	1,290,000
46	04440712031	Maseru	1,290,000
47	02080323044	Leribe	1,290,000
48	04420513065	Maseru	1,800,000
49	05480113045	Mafeteng	1,800,000
50	02080313001	Leribe	1,020,000
51	04440713044	Maseru	2,220,000
52	04380113001	Maseru	2,235,000
53	01050511017	Botha-Bothe	1,305,000
54	02070223038	Leribe	1,305,000

YEAR 9			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	02171013046	Leribe	2,340,000
56	04450813012	Maseru	1,035,000
57	09780233068	Mokhotlong	1,830,000
58	01030323006	Botha-Bothe	1,830,000
59	06560113013	Mohale's Hoek	1,830,000
60	03190123018	Berea	1,830,000
61	06560113036	Mohale's Hoek	3,045,000
62	09770132032	Mokhotlong	1,560,000
63	06560113031	Mohale's Hoek	1,560,000
64	08690431017	Qacha's Nek	1,560,000
65	06580811079	missing	1,560,000
66	03281111020	Berea	1,560,000
67	03210313026	Berea	1,560,000
68	03190113004	Berea	1,560,000
TOTAL INVESTMENT - YEAR 9			**120,360,000**

YEAR 10			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	06560113011	Mohale's Hoek	1,560,000
2	01030323027	Botha-Bothe	1,560,000
3	09770132025	Mokhotlong	1,560,000
4	02080313018	Leribe	1,560,000
5	03250612038	Berea	1,560,000
6	02080313052	Leribe	1,560,000
7	01050511018	Botha-Bothe	1,320,000
8	02181113025	Leribe	1,320,000
9	04460923011	Maseru	1,320,000
10	02171013039	Leribe	1,845,000
11	02100523043	Leribe	3,075,000
12	03200212049	Berea	1,575,000
13	02131211022	Leribe	1,575,000
14	05510413029	Mafeteng	1,575,000
15	02090413021	Leribe	1,575,000
16	06570811012	Mohale's Hoek	1,575,000
17	02141211003	Leribe	1,575,000
18	03240413084	Berea	1,575,000
19	03210313022	Berea	1,575,000
20	03200213002	Berea	1,575,000
21	06580811094	Mohale's Hoek	1,575,000
22	02060133010	Leribe	1,575,000
23	09800433010	Mokhotlong	1,575,000
24	02090413023	Leribe	1,860,000
25	02181113019	Leribe	1,860,000
26	02070213009	Leribe	1,335,000
27	03190123020	Berea	1,335,000

YEAR 10			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	04390213027	Maseru	2,295,000
29	02110511048	Leribe	2,295,000
30	10720132041	Thaba-Tseka	2,400,000
31	07660343012	Quthing	1,590,000
32	02140813028	Leribe	1,590,000
33	02181113008	Leribe	1,590,000
34	09790531030	Mokhotlong	1,590,000
35	01020223030	Botha-Bothe	1,590,000
36	07660343003	Quthing	1,590,000
37	07650641053	Quthing	1,590,000
38	08690431031	Qacha's Nek	1,590,000
39	03200213053	Berea	1,590,000
40	01020213016	Botha-Bothe	1,590,000
41	04450813061	Maseru	1,590,000
42	02110613054	Leribe	1,875,000
43	05520512030	Mafeteng	1,065,000
44	07670442055	Quthing	1,065,000
45	07640143029	Quthing	1,065,000
46	04420512036	missing	1,065,000
47	07640641019	Quthing	1,065,000
48	06610523028	Mohale's Hoek	1,065,000
49	03200212011	Berea	1,065,000
50	04420513059	Maseru	1,065,000
51	02171013050	Leribe	1,065,000
52	02060133063	Leribe	1,065,000
53	03210313049	Berea	1,065,000
54	10720133055	Thaba-Tseka	1,065,000

YEAR 10			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	03200213036	Berea	1,065,000
56	03230512026	Berea	1,065,000
57	04471231061	Maseru	1,065,000
58	03260713023	Berea	1,065,000
59	07660343007	Quthing	1,065,000
60	03190123014	Berea	1,065,000
61	05510423059	Mafeteng	1,065,000
62	09770133020	Mokhotlong	1,350,000
63	01050511084	Botha-Bothe	1,350,000
64	05540713050	Mafeteng	1,605,000
65	03190123028	Berea	1,605,000
66	05530613021	Mafeteng	1,605,000
67	03190123027	Berea	1,605,000
68	02120713009	Leribe	1,605,000
69	10750433008	Thaba-Tseka	1,605,000
70	03260713062	Berea	1,605,000
71	02080313032	Leribe	1,605,000
72	02181113002	Leribe	1,605,000
73	04471033051	Maseru	1,605,000
74	04390223017	Maseru	1,605,000
75	05520523014	Mafeteng	1,605,000
76	03260713051	missing	1,605,000
77	07660343011	Quthing	1,890,000
78	01020213045	Botha-Bothe	1,890,000
79	05520513043	Mafeteng	1,890,000
TOTAL INVESTMENT - YEAR 10			**119,355,000**

YEAR 11			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	03210313053	Berea	2,430,000
2	03230513032	Berea	2,430,000
3	03220413005	Berea	1,365,000
4	06560113028	Mohale's Hoek	1,365,000
5	06590343026	Mohale's Hoek	1,905,000
6	02090413011	Leribe	1,080,000
7	02171013035	Leribe	1,620,000
8	03260713026	Berea	1,620,000
9	02160913076	Leribe	1,620,000
10	01040413005	Botha-Bothe	1,620,000
11	02151311055	Leribe	1,080,000
12	04471231062	Maseru	1,080,000
13	05490213001	Mafeteng	1,080,000
14	05490213014	Mafeteng	1,080,000
15	08710431018	Qacha's Nek	1,620,000
16	01040413030	Botha-Bothe	1,620,000
17	01030323026	missing	1,620,000
18	10750433066	Thaba-Tseka	1,620,000
19	02181113046	Leribe	1,620,000
20	02060133031	Leribe	1,080,000
21	06610523040	Mohale's Hoek	1,080,000
22	04460913006	Maseru	1,620,000
23	02181113026	Leribe	2,460,000
24	06570213064	Mohale's Hoek	1,920,000
25	02120713021	Leribe	1,920,000
26	03210313044	Berea	1,920,000
27	02110613050	Leribe	1,635,000

YEAR 11			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	02131211014	Leribe	1,635,000
29	02151311057	Leribe	1,635,000
30	02110613060	Leribe	1,635,000
31	05540713053	Mafeteng	1,635,000
32	04380113063	Maseru	1,635,000
33	10720132044	Thaba-Tseka	1,635,000
34	09770133019	Mokhotlong	1,635,000
35	05510413049	Mafeteng	1,635,000
36	06610523035	Mohale's Hoek	1,635,000
37	03230513038	Berea	1,635,000
38	02080323036	Leribe	1,380,000
39	04410413073	Maseru	1,095,000
40	02160913074	Leribe	1,095,000
41	02110613006	Leribe	1,095,000
42	05520523021	Mafeteng	1,095,000
43	04390213013	Maseru	1,095,000
44	06600443036	Mohale's Hoek	1,095,000
45	03190123019	Berea	1,095,000
46	06570213060	Mohale's Hoek	1,935,000
47	02181113047	Leribe	1,935,000
48	05530613047	Mafeteng	1,650,000
49	02100513003	Leribe	1,650,000
50	07650641054	Quthing	1,650,000
51	04390213002	Maseru	1,650,000
52	01040423042	Botha-Bothe	1,650,000
53	02140813048	Leribe	1,650,000
54	02141211009	Leribe	1,395,000

YEAR 11			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	04471033053	Maseru	1,395,000
56	03210313040	Berea	1,395,000
57	02080323031	Leribe	1,395,000
58	05480113047	Mafeteng	1,395,000
59	02060133049	Leribe	1,665,000
60	04420513070	Maseru	1,665,000
61	06570811046	Mohale's Hoek	1,665,000
62	02060133007	Leribe	1,110,000
63	07640641020	Quthing	1,110,000
64	05540713049	Mafeteng	1,665,000
65	05540713012	Mafeteng	1,665,000
66	02131211090	Leribe	1,110,000
67	03250613018	Berea	1,110,000
68	01020213039	Botha-Bothe	1,665,000
69	01030323018	Botha-Bothe	1,110,000
70	01050511009	Botha-Bothe	1,110,000
71	05520513048	Mafeteng	1,665,000
72	01020213005	Botha-Bothe	1,110,000
73	10740333055	Thaba-Tseka	1,665,000
74	06600443038	Mohale's Hoek	1,110,000
75	03200213054	Berea	1,110,000
76	06560113030	Mohale's Hoek	1,665,000
77	04460913005	Maseru	1,665,000
78	03260713056	Berea	1,665,000
79	05520523013	Mafeteng	1,665,000
80	03190123012	Berea	1,110,000
81	02070223042	Leribe	1,110,000
TOTAL INVESTMENT - YEAR 11			**121,440,000**

YEAR 12			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	04400323054	Maseru	1,110,000
2	03230513054	Berea	1,110,000
3	10720133036	Thaba-Tseka	1,965,000
4	04380113073	Maseru	1,965,000
5	01020213008	Botha-Bothe	1,965,000
6	02120713029	Leribe	1,965,000
7	04410413080	Maseru	1,965,000
8	10740631032	Thaba-Tseka	1,410,000
9	02120713025	Leribe	2,535,000
10	05540713068	Mafeteng	1,680,000
11	03291111045	missing	1,680,000
12	04410423096	Maseru	1,680,000
13	04440713022	Maseru	1,680,000
14	09790333065	Mokhotlong	1,680,000
15	06560113042	Mohale's Hoek	1,680,000
16	09800433003	Mokhotlong	1,680,000
17	04440713043	Maseru	1,680,000
18	05500323035	Mafeteng	1,680,000
19	03210313023	Berea	1,980,000
20	05510413040	Mafeteng	1,980,000
21	06560113020	Mohale's Hoek	1,980,000
22	04371111013	Maseru	1,125,000
23	03230512016	Berea	1,125,000
24	06600443041	Mohale's Hoek	1,125,000
25	04410423086	Maseru	1,125,000
26	02160913083	Leribe	1,125,000
27	02100513010	Leribe	1,125,000

YEAR 12			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	05510413044	Mafeteng	1,125,000
29	09790531001	Mokhotlong	1,125,000
30	03190123039	Berea	1,125,000
31	03210313057	Berea	1,125,000
32	03210313011	Berea	1,425,000
33	09770133012	Mokhotlong	1,425,000
34	05480113007	Mafeteng	1,425,000
35	01030323008	Botha-Bothe	1,695,000
36	06580811081	Mohale's Hoek	1,695,000
37	03200213007	Berea	1,695,000
38	02181113049	Leribe	1,695,000
39	03250612028	Berea	1,695,000
40	04440713005	Maseru	1,695,000
41	02151311018	Leribe	1,995,000
42	05500313001	Mafeteng	1,995,000
43	06600443026	Mohale's Hoek	1,995,000
44	05520523011	Mafeteng	1,440,000
45	06590313013	Mohale's Hoek	3,150,000
46	05500313012	Mafeteng	1,140,000
47	05530613023	Mafeteng	1,710,000
48	02151311009	Leribe	1,710,000
49	02131211085	Leribe	1,140,000
50	04410412037	Maseru	1,140,000
51	03270813052	Berea	1,710,000
52	01030323014	missing	1,710,000
53	03250613014	Berea	1,710,000
54	02100513004	Leribe	1,710,000

YEAR 12			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	04450823067	Maseru	1,140,000
56	02100513002	Leribe	1,140,000
57	09790333067	Mokhotlong	1,140,000
58	05510413041	Mafeteng	1,710,000
59	10750433007	Thaba-Tseka	1,140,000
60	04390223014	Maseru	1,710,000
61	04460913001	Maseru	1,140,000
62	02100513006	Leribe	2,025,000
63	02120713015	Leribe	2,025,000
64	03260713005	Berea	2,025,000
65	02090413034	Leribe	2,025,000
66	05500323037	Mafeteng	2,025,000
67	02140813034	Leribe	1,725,000
68	05530613006	Mafeteng	1,725,000
69	03200213010	Berea	1,725,000
70	01020213041	Botha-Bothe	1,725,000
71	02100523025	Leribe	1,725,000
72	10720133030	Thaba-Tseka	1,725,000
73	01040413027	Botha-Bothe	1,725,000
74	03190123009	Berea	1,725,000
TOTAL INVESTMENT - YEAR 12			120,045,000

YEAR 13			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	05510413042	Mafeteng	1,725,000
2	05520523019	Mafeteng	1,725,000
3	04390223016	Maseru	1,725,000
4	09800433022	Mokhotlong	1,455,000
5	01020213036	Botha-Bothe	1,455,000
6	02080313019	Leribe	1,455,000
7	09780233059	Mokhotlong	1,455,000
8	06610523027	Mohale's Hoek	2,610,000
9	02171013020	Leribe	2,610,000
10	02110613049	Leribe	1,155,000
11	07650641005	Quthing	1,155,000
12	02131211002	Leribe	1,155,000
13	03230513049	Berea	1,155,000
14	02110613030	Leribe	1,155,000
15	05510413056	Mafeteng	1,155,000
16	04460923004	Maseru	1,155,000
17	03190123037	Berea	1,155,000
18	02060133046	Leribe	2,040,000
19	09800433018	Mokhotlong	2,040,000
20	02171013037	Leribe	2,040,000
21	02080313003	Leribe	1,740,000
22	02070213022	Leribe	1,740,000
23	02100513020	Leribe	1,740,000
24	01030313005	Botha-Bothe	1,740,000
25	04420513077	Maseru	1,740,000
26	04450813052	Maseru	1,740,000
27	02181113051	Leribe	1,740,000

YEAR 13			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	03250613015	Berea	1,740,000
29	10720132013	Thaba-Tseka	1,470,000
30	06610523025	Mohale's Hoek	1,470,000
31	05480113043	Mafeteng	1,470,000
32	02120713037	Leribe	2,325,000
33	03200213004	Berea	2,325,000
34	03220413010	Berea	2,640,000
35	07660343008	Quthing	1,170,000
36	03220413004	Berea	1,755,000
37	04450812047	Maseru	1,170,000
38	02070223035	Leribe	2,340,000
39	02131211001	Leribe	1,170,000
40	03230513052	Berea	1,755,000
41	02171013024	Leribe	2,340,000
42	10720132040	Thaba-Tseka	1,755,000
43	06600443034	Mohale's Hoek	1,170,000
44	03270813061	Berea	1,170,000
45	03230513051	Berea	1,170,000
46	02060133029	Leribe	1,170,000
47	05490213042	Mafeteng	2,340,000
48	06600443030	Mohale's Hoek	1,755,000
49	09800433014	Mokhotlong	1,170,000
50	10740333058	Thaba-Tseka	2,340,000
51	08690143047	Qacha's Nek	2,655,000
52	02080313024	Leribe	2,070,000
53	03260713033	Berea	2,070,000
54	01050511010	Botha-Bothe	1,485,000

YEAR 13			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	06570811011	Mohale's Hoek	1,770,000
56	01040413009	Botha-Bothe	1,770,000
57	05500313004	Mafeteng	1,770,000
58	02090413025	Leribe	1,770,000
59	01040413025	Botha-Bothe	1,770,000
60	04410413083	Maseru	1,770,000
61	02181113029	Leribe	1,770,000
62	04450813062	Maseru	1,770,000
63	03230513035	Berea	1,770,000
64	02090423037	Leribe	1,770,000
65	03260713034	Berea	2,085,000
66	04420513063	Maseru	1,185,000
67	03291111083	Berea	1,185,000
68	08710431015	Qacha's Nek	1,185,000
69	06560113007	Mohale's Hoek	1,185,000
70	04471231057	Maseru	1,185,000
71	05490213037	Mafeteng	1,185,000
72	02070213016	Leribe	1,185,000
TOTAL INVESTMENT - YEAR 13			**119,295,000**

YEAR 14			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	02131211072	Leribe	1,185,000
2	04450813051	Maseru	1,185,000
3	07640641004	Quthing	1,185,000
4	05500313013	Mafeteng	1,185,000
5	09790531003	Mokhotlong	1,185,000
6	04400323059	Maseru	1,185,000
7	02070223040	Leribe	1,185,000
8	01010123018	Botha-Bothe	1,185,000
9	04430612039	Maseru	1,500,000
10	05490213012	Mafeteng	2,100,000
11	03230513050	Berea	2,100,000
12	01020213043	Botha-Bothe	1,785,000
13	05500313018	Mafeteng	1,785,000
14	10720133051	Thaba-Tseka	1,785,000
15	02171013023	Leribe	1,785,000
16	05530613009	Mafeteng	1,785,000
17	03270813036	Berea	2,385,000
18	01050511012	Botha-Bothe	1,515,000
19	01050511097	Botha-Bothe	2,115,000
20	03241011087	Berea	1,200,000
21	02060133020	Leribe	1,800,000
22	04390213005	Maseru	2,400,000
23	02141211021	Leribe	1,800,000
24	04390213023	Maseru	1,800,000
25	02110511047	Leribe	1,800,000
26	02140813039	Leribe	1,800,000
27	04380113076	Maseru	1,800,000

YEAR 14			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	05530811054	Mafeteng	1,200,000
29	10740631048	Thaba-Tseka	1,800,000
30	02110613029	Leribe	1,800,000
31	04440712033	Maseru	1,200,000
32	03250613002	Berea	1,200,000
33	03230512027	Berea	1,800,000
34	05530613005	Mafeteng	1,800,000
35	03220413017	Berea	2,400,000
36	03260713053	Berea	1,800,000
37	10730233002	Thaba-Tseka	2,130,000
38	03230513004	Berea	1,530,000
39	05480113002	Mafeteng	1,530,000
40	06590313011	Mohale's Hoek	1,815,000
41	02120713010	Leribe	1,815,000
42	04420513064	Maseru	1,815,000
43	02080313033	Leribe	1,815,000
44	02080313023	Leribe	1,815,000
45	04420513085	Maseru	1,815,000
46	08690133065	Qacha's Nek	1,815,000
47	02070223018	Leribe	1,815,000
48	01040413034	Botha-Bothe	1,815,000
49	01040413036	Botha-Bothe	1,815,000
50	04440713021	Maseru	1,815,000
51	07640641012	Quthing	1,215,000
52	02110613052	Leribe	1,215,000
53	02110613032	Leribe	1,215,000
54	02120713001	Leribe	1,215,000

YEAR 14			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	04390213010	Maseru	1,215,000
56	03220413002	Berea	1,215,000
57	03210313041	Berea	1,215,000
58	05500313010	Mafeteng	1,215,000
59	06560113010	Mohale's Hoek	1,215,000
60	02151311003	Leribe	1,215,000
61	10720133026	Thaba-Tseka	1,215,000
62	03250613024	Berea	1,215,000
63	03220413012	Berea	1,215,000
64	05540713005	Mafeteng	1,215,000
65	02100523014	Leribe	2,145,000
66	06570213063	Mohale's Hoek	1,830,000
67	10740631028	Thaba-Tseka	1,830,000
68	01020223047	Botha-Bothe	1,830,000
69	02060133015	Leribe	1,830,000
70	06600443029	Mohale's Hoek	1,830,000
71	01050511086	Botha-Bothe	1,545,000
72	09780233070	Mokhotlong	1,545,000
73	03230513039	Berea	1,545,000
74	02080323039	Leribe	2,445,000
TOTAL INVESTMENT - YEAR 14			**120,060,000**

YEAR 15			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	01020223050	Botha-Bothe	2,160,000
2	02151311014	Leribe	1,845,000
3	02131211025	Leribe	1,845,000
4	10740631031	Thaba-Tseka	1,230,000
5	06590343032	Mohale's Hoek	1,845,000
6	04450813019	missing	2,460,000
7	01040413020	Botha-Bothe	2,460,000
8	04450812005	Maseru	1,230,000
9	03250613013	Berea	1,230,000
10	01050511080	Botha-Bothe	1,845,000
11	02131211008	Leribe	1,845,000
12	01040413014	Botha-Bothe	1,230,000
13	05520513046	Mafeteng	1,845,000
14	03200213006	Berea	1,230,000
15	10720132009	Thaba-Tseka	1,230,000
16	03210313037	Berea	1,230,000
17	05520523016	Mafeteng	1,230,000
18	04390223019	Maseru	1,230,000
19	04430612036	Maseru	1,230,000
20	06630743068	Mohale's Hoek	1,230,000
21	02181113013	Leribe	1,845,000
22	10750433009	Thaba-Tseka	1,845,000
23	02080323046	Leribe	1,845,000
24	03250613008	Berea	1,230,000
25	06560113026	Mohale's Hoek	1,230,000
26	05490212028	Mafeteng	1,230,000
27	02171013032	Leribe	2,175,000

YEAR 15			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	02171013040	Leribe	2,175,000
29	04440713009	Maseru	2,175,000
30	04390213030	Maseru	2,475,000
31	02070213013	Leribe	1,860,000
32	06570213065	Mohale's Hoek	1,860,000
33	02100513017	Leribe	1,860,000
34	03220413021	Berea	1,860,000
35	03250612034	Berea	2,190,000
36	04440713002	Maseru	3,105,000
37	03200212045	Berea	1,245,000
38	03291111075	Berea	1,245,000
39	02151311016	Leribe	1,245,000
40	02171013018	Leribe	1,245,000
41	02110613028	Leribe	1,245,000
42	03260713063	Berea	1,245,000
43	02090413027	Leribe	1,245,000
44	05510413036	Mafeteng	1,245,000
45	03210313046	Berea	1,245,000
46	05520523007	Mafeteng	1,245,000
47	04420513082	missing	1,245,000
48	06600413001	Mohale's Hoek	1,245,000
49	04440713003	Maseru	1,245,000
50	04400323085	Maseru	1,245,000
51	02100513035	Leribe	1,875,000
52	02181113017	Leribe	1,875,000
53	03260713055	Berea	1,875,000
54	05530613050	Mafeteng	2,220,000

YEAR 15			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	02151311008	Leribe	1,260,000
56	01050511083	Botha-Bothe	1,260,000
57	02090412057	Leribe	2,520,000
58	04420513069	Maseru	1,260,000
59	02151311006	Leribe	1,260,000
60	07640641026	Quthing	1,260,000
61	01030323029	Botha-Bothe	1,260,000
62	04471231063	Maseru	1,260,000
63	07650641004	Quthing	1,890,000
64	05530613001	Mafeteng	1,260,000
65	02060133018	Leribe	1,890,000
66	02110613004	Leribe	1,890,000
67	02151311015	Leribe	1,260,000
68	04390213024	Maseru	1,890,000
69	02171013030	Leribe	1,260,000
70	03270813053	Berea	1,890,000
71	02080313025	Leribe	1,890,000
72	03190123007	Berea	1,260,000
73	02120713003	Leribe	2,520,000
74	03260713049	Berea	1,260,000
75	06590313015	Mohale's Hoek	1,260,000
TOTAL INVESTMENT - YEAR 15			**120,675,000**

YEAR 16			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	04450813065	Maseru	1,890,000
2	06560113023	Mohale's Hoek	1,260,000
3	02100523044	Leribe	2,535,000
4	02100513026	Leribe	2,535,000
5	04380113079	Maseru	2,535,000
6	03200212041	Berea	1,905,000
7	02070213011	Leribe	1,905,000
8	02070213012	Leribe	1,905,000
9	03260713018	Berea	1,905,000
10	01020223020	Botha-Bothe	2,250,000
11	02171013034	Leribe	2,250,000
12	01030313003	Botha-Bothe	1,275,000
13	06590343022	Mohale's Hoek	1,275,000
14	02160913081	Leribe	1,275,000
15	03190123036	Berea	1,275,000
16	02110613001	Leribe	1,275,000
17	02100523039	Leribe	1,920,000
18	01020223023	Botha-Bothe	1,920,000
19	02171013048	Leribe	1,920,000
20	01020213007	Botha-Bothe	1,920,000
21	02060132050	Leribe	1,290,000
22	02140813027	Leribe	1,935,000
23	04450813008	Maseru	1,290,000
24	02141211020	Leribe	1,290,000
25	07650641033	Quthing	2,580,000
26	07640641002	Quthing	1,290,000
27	04390213051	Maseru	1,290,000

YEAR 16			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	10750432073	Thaba-Tseka	1,290,000
29	04410413074	Maseru	1,290,000
30	04450813054	Maseru	1,290,000
31	05530811013	Mafeteng	1,290,000
32	02100523040	Leribe	1,290,000
33	03190123034	Berea	1,290,000
34	05540713014	Mafeteng	1,290,000
35	04420513075	Maseru	1,290,000
36	06590343039	Mohale's Hoek	1,290,000
37	02060133005	Leribe	1,935,000
38	05500313020	Mafeteng	1,290,000
39	02070223041	Leribe	1,935,000
40	03270813035	Berea	3,240,000
41	02070223031	Leribe	2,595,000
42	01020213038	Botha-Bothe	1,950,000
43	03230513001	Berea	1,950,000
44	03190123035	Berea	1,950,000
45	02120713008	Leribe	2,295,000
46	02100513027	Leribe	1,305,000
47	06570811010	Mohale's Hoek	1,305,000
48	04381111038	Maseru	1,305,000
49	03241011083	Berea	1,305,000
50	02080313012	Leribe	1,305,000
51	05530613052	Mafeteng	1,305,000
52	10720133059	Thaba-Tseka	1,305,000
53	04390213007	Maseru	1,305,000
54	02060133045	Leribe	1,305,000

YEAR 16			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	08690143062	Qacha's Nek	1,305,000
56	04380113064	Maseru	1,305,000
57	04420513084	Maseru	1,305,000
58	03250613021	Berea	1,305,000
59	03230513053	Berea	1,305,000
60	02120713042	Leribe	2,310,000
61	02160913085	Leribe	1,965,000
62	03230513036	Berea	1,965,000
63	06560113034	Mohale's Hoek	1,965,000
64	03220413019	Berea	1,965,000
65	03220413031	Berea	1,965,000
66	04420513068	Maseru	1,980,000
67	04450813050	Maseru	1,320,000
68	03200212039	Berea	1,320,000
69	03200213031	Berea	1,980,000
70	03270813050	Berea	1,980,000
71	03210313010	Berea	1,980,000
TOTAL INVESTMENT - YEAR 16			**119,610,000**

YEAR 17			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	05490213005	Mafeteng	1,320,000
2	04420513061	Maseru	1,320,000
3	02100513009	Leribe	1,320,000
4	02140813044	Leribe	1,320,000
5	02171013028	Leribe	1,320,000
6	05530613011	Mafeteng	1,980,000
7	02171013021	Leribe	1,320,000
8	02090413031	Leribe	1,980,000
9	02080313026	Leribe	1,320,000
10	02090413032	Leribe	1,980,000
11	03220413008	Berea	1,320,000
12	02100523019	Leribe	1,320,000
13	05510423025	Mafeteng	1,320,000
14	05520513006	Mafeteng	1,995,000
15	02090413039	Leribe	1,995,000
16	03270813033	Berea	2,670,000
17	04471231065	Maseru	1,335,000
18	09770133057	Mokhotlong	1,335,000
19	02070223005	Leribe	1,335,000
20	03190123006	Berea	1,335,000
21	05490213035	Mafeteng	1,335,000
22	05540713062	Mafeteng	1,335,000
23	02080323043	Leribe	1,335,000
24	04430613052	Maseru	2,010,000
25	10740333053	Thaba-Tseka	2,010,000
26	02171013049	Leribe	2,010,000
27	04410413082	Maseru	2,010,000

YEAR 17			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	02060133066	Leribe	2,010,000
29	10720133008	Thaba-Tseka	2,010,000
30	05540713018	Mafeteng	1,350,000
31	02160913087	Leribe	2,025,000
32	05540713008	Mafeteng	1,350,000
33	10720133057	Thaba-Tseka	1,350,000
34	04410412036	Maseru	1,350,000
35	02131211016	Leribe	2,025,000
36	04450813018	Maseru	2,025,000
37	04410413001	Maseru	1,350,000
38	06610523033	Mohale's Hoek	1,350,000
39	06560113032	Mohale's Hoek	1,350,000
40	04390213028	Maseru	1,350,000
41	05540713060	Mafeteng	1,350,000
42	04460923041	Maseru	1,350,000
43	10750433065	Thaba-Tseka	1,350,000
44	01040423041	Botha-Bothe	2,700,000
45	03250613025	Berea	2,025,000
46	05480113036	Mafeteng	1,350,000
47	03210323058	Berea	1,350,000
48	03220413015	Berea	1,350,000
49	01040413016	Botha-Bothe	2,715,000
50	02160913066	Leribe	2,040,000
51	01040413002	Botha-Bothe	2,040,000
52	02140813038	Leribe	2,040,000
53	02110613010	Leribe	2,040,000
54	01040413035	Botha-Bothe	2,040,000

YEAR 17			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	03250613005	Berea	1,365,000
56	05520512024	Mafeteng	1,365,000
57	04311111027	Maseru	1,365,000
58	05550811080	Mafeteng	2,730,000
59	09790531004	Mokhotlong	1,365,000
60	05530613053	Mafeteng	1,365,000
61	10730233001	Thaba-Tseka	1,365,000
62	02141211001	Leribe	1,365,000
63	05520523010	Mafeteng	1,365,000
64	01030323028	Botha-Bothe	1,365,000
65	03250613016	Berea	1,365,000
66	02131211096	Leribe	2,730,000
67	02060133047	Leribe	1,365,000
68	05530613008	Mafeteng	1,365,000
69	02060133004	Leribe	1,365,000
70	02181113023	Leribe	2,055,000
71	02070213010	Leribe	2,055,000
72	01030323024	Botha-Bothe	2,055,000
TOTAL INVESTMENT - YEAR 17			**119,190,000**

YEAR 18			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	02090413017	Leribe	2,055,000
2	03260713060	Berea	2,055,000
3	04410413004	Maseru	2,070,000
4	03220413006	Berea	2,070,000
5	01010123046	Botha-Bothe	1,380,000
6	03200212042	Berea	1,380,000
7	05510413028	Mafeteng	1,380,000
8	04390213004	Maseru	2,070,000
9	03260713004	Berea	1,380,000
10	06570811049	Mohale's Hoek	1,380,000
11	01020223022	Botha-Bothe	2,070,000
12	02120713030	Leribe	1,380,000
13	01040413023	Botha-Bothe	2,070,000
14	05530613056	Mafeteng	1,380,000
15	01010113026	Botha-Bothe	1,380,000
16	10730233003	Thaba-Tseka	1,380,000
17	03200213009	Berea	2,070,000
18	05520513005	Mafeteng	2,070,000
19	02100513013	Leribe	2,070,000
20	06590343044	Mohale's Hoek	1,380,000
21	03250613020	Berea	1,380,000
22	03250613007	Berea	1,380,000
23	02110613008	Leribe	1,380,000
24	03270813047	Berea	2,085,000
25	02140813032	Leribe	2,085,000
26	04380113062	Maseru	2,085,000
27	03210313024	Berea	2,085,000

YEAR 18			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	02100513016	Leribe	2,085,000
29	07660641011	Quthing	1,395,000
30	05510412032	Mafeteng	1,395,000
31	02090413014	Leribe	1,395,000
32	04410412039	missing	1,395,000
33	02110613037	Leribe	1,395,000
34	08710431017	Qacha's Nek	1,395,000
35	03190123005	Berea	1,395,000
36	01030323015	Botha-Bothe	1,395,000
37	10740631005	Thaba-Tseka	1,395,000
38	01010123045	Botha-Bothe	1,395,000
39	03250612027	Berea	1,395,000
40	05520513040	Mafeteng	1,395,000
41	01010113020	Botha-Bothe	1,395,000
42	04460923037	Maseru	1,395,000
43	04380113059	Maseru	2,100,000
44	02070223032	Leribe	2,100,000
45	06590343033	Mohale's Hoek	2,115,000
46	04410423088	Maseru	1,410,000
47	02060133062	Leribe	1,410,000
48	02120713016	Leribe	2,820,000
49	05530811040	Mafeteng	1,410,000
50	02171013051	Leribe	1,410,000
51	02090413004	Leribe	2,820,000
52	02090413022	Leribe	2,115,000
53	04380113003	Maseru	1,410,000
54	02090413012	Leribe	1,410,000

YEAR 18			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	04400323060	Maseru	1,410,000
56	01040413032	Botha-Bothe	1,410,000
57	03220413001	Berea	1,410,000
58	08690133046	Qacha's Nek	1,410,000
59	01030333057	Botha-Bothe	1,410,000
60	04390213001	Maseru	1,410,000
61	03190123011	Berea	1,410,000
62	04460923008	Maseru	2,115,000
63	03250612032	Berea	1,410,000
64	04460923023	Maseru	1,410,000
65	03220413033	Berea	1,410,000
66	03270813048	Berea	3,540,000
67	05500313006	Mafeteng	2,130,000
68	02140813031	Leribe	2,130,000
69	05500313014	Mafeteng	2,130,000
70	07650641001	Quthing	2,130,000
71	04450813010	Maseru	1,425,000
TOTAL INVESTMENT - YEAR 18			**120,795,000**

YEAR 19			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	04390213035	Maseru	1,425,000
2	03210313015	Berea	1,425,000
3	03210313002	Berea	1,425,000
4	03271111027	Berea	1,425,000
5	03210313036	Berea	1,425,000
6	04450813066	Maseru	1,425,000
7	07670443052	Quthing	1,425,000
8	09800433027	Mokhotlong	1,425,000
9	05490213018	Mafeteng	1,425,000
10	02120713043	Leribe	2,145,000
11	06580811083	Mohale's Hoek	1,440,000
12	04390213034	Maseru	2,160,000
13	02141211016	Leribe	1,440,000
14	06590343038	Mohale's Hoek	1,440,000
15	01040413013	Botha-Bothe	1,440,000
16	02161311065	Leribe	1,440,000
17	04431111022	Maseru	1,440,000
18	10720133058	Thaba-Tseka	1,440,000
19	02181112043	Leribe	1,440,000
20	02060133059	Leribe	1,440,000
21	03250613006	Berea	1,440,000
22	03190123026	Berea	1,440,000
23	10740631001	Thaba-Tseka	1,440,000
24	03190123051	Berea	1,440,000
25	03220413032	Berea	2,160,000
26	05530811014	Mafeteng	1,455,000
27	02141211007	Leribe	1,455,000

YEAR 19			
PRIORITY	EA CODE	DISTRICT	COST [M]
28	01050511085	Botha-Bothe	1,455,000
29	06580811077	Mohale's Hoek	1,455,000
30	02140813030	Leribe	1,455,000
31	02080313014	Leribe	1,455,000
32	05530613051	Mafeteng	1,455,000
33	03190123008	Berea	1,455,000
34	02060132052	Leribe	3,660,000
35	02110613035	Leribe	1,470,000
36	02140813043	Leribe	2,205,000
37	05520513002	Mafeteng	1,470,000
38	09780233062	Mokhotlong	1,470,000
39	02151311017	Leribe	1,470,000
40	02151311004	Leribe	1,470,000
41	02181113024	Leribe	1,470,000
42	10740631006	Thaba-Tseka	1,470,000
43	04380113002	Maseru	2,205,000
44	05530613007	Mafeteng	1,470,000
45	04390223021	Maseru	1,470,000
46	01030323016	Botha-Bothe	1,470,000
47	03270813034	Berea	2,955,000
48	03250613012	Berea	1,485,000
49	09790531010	Mokhotlong	1,485,000
50	02100523038	Leribe	2,970,000
51	03210313021	Berea	1,485,000
52	01020213042	Botha-Bothe	1,485,000
53	03190123024	Berea	1,485,000
54	03190123031	Berea	1,485,000

YEAR 19			
PRIORITY	EA CODE	DISTRICT	COST [M]
55	03190123025	Berea	1,485,000
56	02131211015	Leribe	2,235,000
57	03250613009	Berea	2,235,000
58	09780233064	Mokhotlong	1,500,000
59	03270813057	Berea	3,000,000
60	02160913073	Leribe	2,250,000
61	06570811005	Mohale's Hoek	2,250,000
62	03260713044	Berea	1,500,000
63	02181113053	Leribe	1,500,000
64	02160913086	Leribe	2,250,000
65	02090413024	Leribe	1,500,000
66	06570213058	Mohale's Hoek	1,500,000
67	02060133028	Leribe	1,500,000
68	02060133006	Leribe	1,500,000
69	05530613003	Mafeteng	1,500,000
70	02181113016	Leribe	1,500,000
71	04460923042	Maseru	1,500,000
72	04440713020	Maseru	2,250,000
TOTAL INVESTMENT - YEAR 19			**120,210,000**

YEAR 20			
PRIORITY	EA CODE	DISTRICT	COST [M]
1	02090413007	Leribe	2,265,000
2	05490213011	Mafeteng	2,265,000
3	03260713007	Berea	2,265,000
4	07670442059	Quthing	1,515,000
5	10740631030	Thaba-Tseka	1,515,000
6	04390213022	Maseru	1,515,000
7	03230513045	Berea	1,515,000
8	09800433012	Mokhotlong	1,515,000
9	07650641056	Quthing	3,030,000

YEAR 20			
PRIORITY	EA CODE	DISTRICT	COST [M]
10	02070223001	Leribe	1,515,000
11	02120713012	Leribe	2,280,000
12	04390213031	Maseru	2,280,000
13	02090423038	Leribe	2,280,000
14	06590313009	Mohale's Hoek	2,295,000
15	06570213066	Mohale's Hoek	1,530,000
16	01030323020	Botha-Bothe	2,295,000
17	04380113066	Maseru	1,530,000
18	10750432070	Thaba-Tseka	1,530,000

YEAR 20			
PRIORITY	EA CODE	DISTRICT	COST [M]
19	02110511012	Leribe	1,530,000
20	02100513030	Leribe	1,530,000
21	03200213001	Berea	1,530,000
22	02060133016	Leribe	1,530,000
23	05500322030	Mafeteng	1,530,000
24	01020213004	Botha-Bothe	1,530,000
25	01010123038	Botha-Bothe	1,530,000
26	03220413013	Berea	1,530,000
TOTAL INVESTMENT - YEAR 20			**47,175,000**