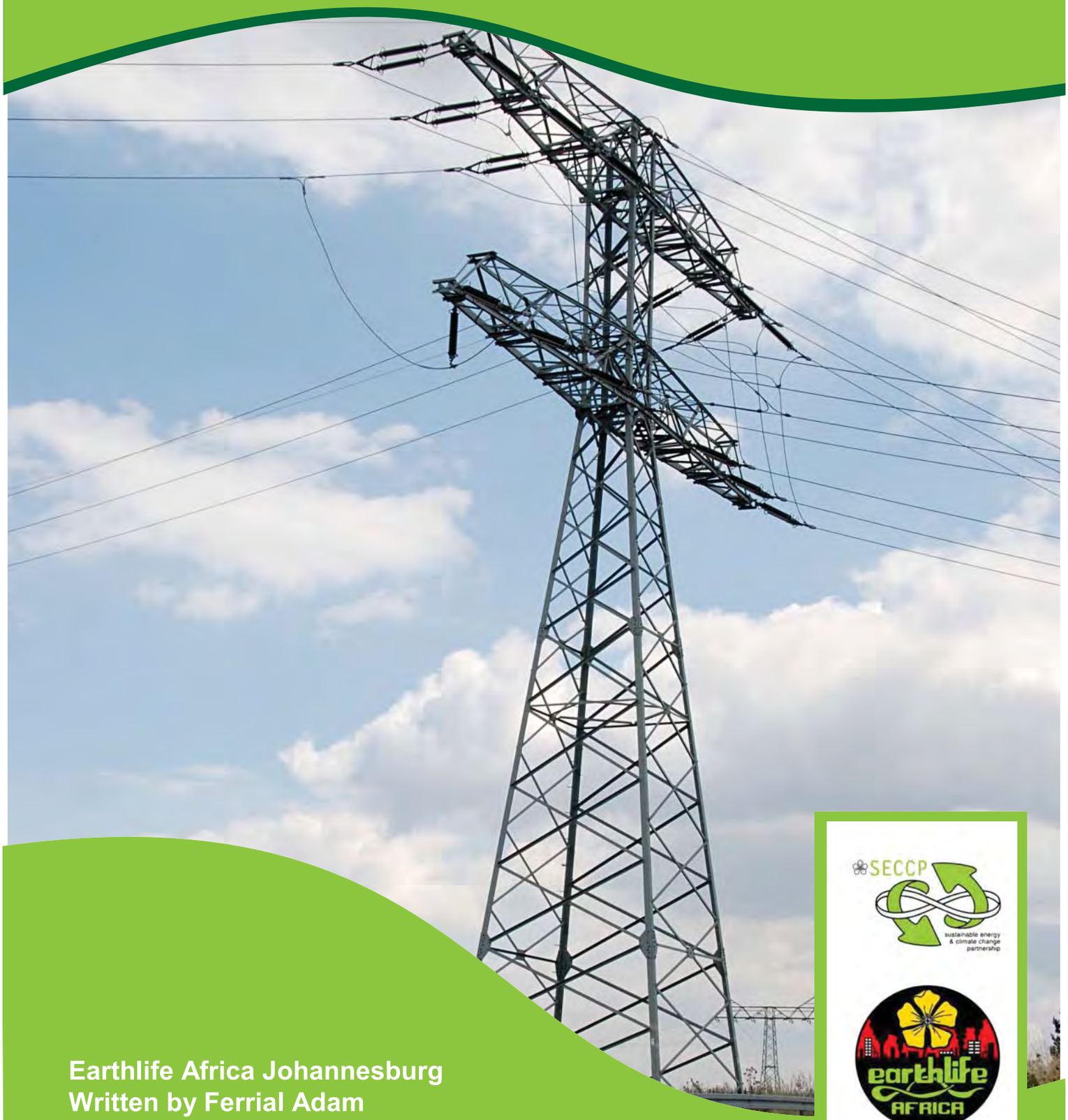
Free Basic Electricity: A better life for all



Earthlife Africa Johannesburg
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The Sustainable Energy and Climate Change Project seek a just transition to renewable energy and a low- carbon economy. The SECCP works to promote local and global environmental and social justice on sustainable energy and climate change issues, by changing policies and behaviour through building the awareness and capacity of civil society and government, to achieve an equitable future with respect for all. The SECCP is a campaign within Earthlife Africa Jhb.

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Contents

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ABBREVIATIONS

Amp – Ampere
CAPEX – Capital Expenditure
CFO – Chief Financial Officer
DME – Department of Minerals and Energy
DoE – Department of Energy
FBE – Free Basic Electricity
FBS – Free Basic Services
GWh – Gigawatt hour
kWh – kilowatt hour
NALEDI – National Labour and Economic Development Institute
SERI – Socio Economic Rights Institute
UCT – University of Cape Town

TABLES

ANNEXURE

1. EXECUTIVE SUMMARY

The South African government announced its policy to provide free basic services to the poor in 2000 – the main areas of focus being free basic water, sanitation and energy. With regards to energy, government has focused mostly on electricity supply and in 2003 released the Free Basic Electricity Policy. The rationale of the Free Basic Electricity (FBE) Policy was to provide “electricity to all” through the provision of a ‘limited’ amount of free electricity to poor households. Subsequently, government decided on an amount of 50kWh per household per month.

On one hand, the policy has been lauded and welcomed as it represents a significant step toward acknowledging that electricity is an important aspect to alleviating poverty. On the other, the policy has led to debates on the amount of electricity being allocated and the method of rolling-out the free electricity. In addition, there have been numerous challenges including a lack of consistency in the way Eskom and local government are rolling-out the free allowance of electricity. For example, in some areas, such as the Ekurhuleni Metropolitan Municipality, 100kWh of free electricity (instead of the 50kWh proposed in the policy) is being provided to all households. Other areas require households to register for the free electricity allocation and therefore limited to a few households on the indigent list. Furthermore, Eskom's current CAPEX programme, rising tariff costs, and spiralling fossil fuel costs are causes for concern, as the rising costs of energy will leave poor households in a deepening cycle of poverty and increasing the danger of economic disconnections.

In response to these deep problems and future concerns, Earthlife Africa Johannesburg undertook this study to evaluate the Department of Energy’s (DoE) policy on free basic electricity, focussing on the amount of free electricity being provided and the model to roll-out such a policy.

The report foregrounds the links between energy and poverty. Without access to energy, poor households are unable to access basic necessities including cooking, heating, studying, lighting, communication, etc. Thus the report is framed by the notion that energy should be a fundamental right - an aspect that is not covered completely in the Constitution. The legal and constitutional analysis, provided by the Socio-Economic Rights Institute, explores this in some detail and states that there is a strongly implied right to electricity in both international and South African domestic law.

Government has acknowledged the relationship between having energy and alleviating poverty, which led to the development of the Free Basic Electricity Policy. The Department of Minerals and Energy's (DME)[1] Guidelines for FBE states "the provision of electricity supply makes a direct contribution to the socio-economic well being of the poor, and has a particular incidence on women and female children who are mainly responsible for carrying firewood, and other energy carriers necessary to maintain a functional household." The main aspects of the policy as well as some of the challenges are discussed in brief, including the imposition of pre-paid meters, the lack of capacity in municipalities to roll-out free basic electricity and the lack of education and awareness on how to access free electricity.

A vital element of this study is the summary and findings of the community surveys and energy audits that were conducted over a number of days from 30 October 2009 to 30 November 2009. The energy audits were carried out by members of the Gender Committee on Energy and Climate Change. The audits involved thirty households in various parts of Gauteng. Three report-back workshops were held to monitor the research and to respond to any concerns or queries experienced by the gender forum in obtaining and understanding the data being collected.

The data obtained was then analysed and used to illustrate that 50kWh per household per month is insufficient. In addition, an assessment of what 50kWh can be used for and how long this could be used in a household was undertaken by Dr P Goyns of Enerkey[2]. These results suggest that households require more than 50kWh per household per month to meet the 'basic' needs in poor households. For example, 4 light bulbs of 60W used for four hours a day for a month will consume 20kWh, an electric stove that is used for one hour a day for a month uses 42kWh and boiling a kettle at least 30min a day for a month uses 21kWh.

Based on the findings in this report, Earthlife Africa Johannesburg proposes an amount of 200kWh per household per month. A funding model provides some insight into the cost of providing 200kWh to each household. In addition, it motivates for a stepped-block tariff as a way forward and as a means to partially finance Free Basic Electricity. The report proposes that other finance required for FBE should be obtained from levies, taxes and cross-subsidisation.

It is hoped that this research will be used not only to influence policy in both the Executive and Legislative Branches of National Government but also to adapt and support policy making in municipalities and Eskom, where it supplies electricity directly to households.

[1] The DME was split after the national elections in 2009. Energy now falls under the Department of Energy

[2] The EnerKey project is a South African – German collaboration, which aims to develop and implement innovative pathways and projects in urban energy supply and use in order to improve the sustainability in the region of Gauteng, South Africa

2. INTRODUCTION

The notion of electricity as a basic human right is becoming more widely accepted and adopted in countries across the globe. However the debate is now shifting from whether it is a right to what does that mean for different governments. The South African government released its policy on Free Basic Electricity in 2003. This report evaluates the FBE policy in South Africa by analysing the amount of FBE provided as well as the manner in which it is being rolled-out.

The background provides insight into the importance of providing energy as a way of alleviating poverty. It also alludes to the legal aspects of electricity. The next section explores government's policy on Free Basic Electricity highlighting the challenges and methods of implementation.

Section 5 summarises the research undertaken to assess whether 50kWh is sufficient. The two methods used of energy audits and a desktop study are described in brief. The findings conclude that 200kWh should be provided per month per household for free.

Section 6 proposes a funding model to achieve a realistic roll-out of free basic electricity. One of the main methods to fund FBE would be to utilise a step-block tariff (a rising tariff with increasing electricity use).

3. BACKGROUND

"Ending energy poverty holds a vital key to ending absolute poverty."[3]

3.1. Electricity is fundamental to upliftment

Electricity is a key component to alleviating poverty. Electricity is used in almost every aspect of life. It is necessary for cooking, storing food, space heating, information, lighting etc. Without sufficient electricity, poor households cannot sufficiently respond to aspects of health, welfare, education and safety. There are an estimated 1.6 billion people across the globe that lack access to electricity. Africa is the region of the lowest electrification rate of only 25-30% in urban areas and only 6% in rural areas having access to electricity . Interestingly, 75% of Africa's population live in rural areas and thus more than 50% of the continent is living without electricity.

[3]Cures Report (2009). Exploring Energy Poverty in South Africa.

[4]http://www.g8energy2009.it/pdf/27.05/G8_Africa_Energy_Poverty_May9_Final_JS_clean.pdf

Even though the picture for South Africa is less dismal, poor homes continue to face challenges accessing electricity. South Africa, unlike many parts of the continent is largely electrified. Urban electrification rates sits at about 80% while rural electrification rates are between 50% and 60%.

There are approximately 2.5 million rural and urban households[5] that are not connected to the electricity grid. In addition there are millions more who have been 'cut off' due to their inability to pay. Therefore although the percentage of electrification is quite high compared to the rest of the continent, the poor are unable to afford enough electricity to impact on the quality of their lives. Socio-economically, South Africa is largely unequal. The poorest 50% of South Africans continue to receive only 3.3% of the national income and 45% are considered poor to very poor.[6] In addition, 40% of households have a family income of less than R1000 per month. With such low family incomes, it is concerning that poorer urban homes in SA spend between 12% and 20% of household income on energy. In contrast high-income urban homes spend approximately 6% of their income on energy.[7]

Furthermore, the lack of access to electricity and the increasing costs, forces most poor households to depend on various energy sources for cooking, lighting, heating, etc. Interestingly, multiple fuel use applies to homes that are electrified as well as unelectrified. The implication of this is that having access to electricity does not necessarily mean that people can afford it. Poor homes will use electricity for lighting but rely on paraffin or wood for heating and cooking. There are over 4 million who do not cook with electricity, 2 million households rely on candles for lighting, and over 50% of households rely to some extent on wood fuel. The use of paraffin, wood and candles is not only expensive but also a health risk as they can result in high levels of respiratory illness, burns and fires.[8] Approximately 80 000 children are poisoned from accidently drinking paraffin each year and paraffin related incidents cost the economy R104 billion annually[9]. Moreover, a significant amount of time is spent on energy related activities – especially for women and young girls who spend as much as 6 hours a day gathering fuel-wood, water and cooking.[10] It is thus accepted that access to electricity improves the level of welfare and improves opportunities for low-income families, and women in particular.[11]

The South African government also acknowledges the close connection between access to energy and poverty alleviation. It is this acceptance of the relationship between poverty alleviation and electricity access that prompted the South African government to develop a policy on free basic services including energy. In 2007, the then Deputy Minister of Minerals and Energy Ms S. Shabangu wrote that *"energy is the life-blood of development and that development is about reducing poverty and about increasing access to basic needs so as to allow people the freedom of self-development."* [12]

[5] Cures Report (2009). Exploring Energy Poverty in South Africa.

[6] Anthony Egan and Alex Wafer (2004), The Soweto Electrcity Crisis Committee, http://www.ukzn.ac.za/ccs/. (Retrieved November 16, 2009)

[7] Cures Report (2009). Exploring Energy Poverty in South Africa.

[8] Cures Report (2009). Exploring Energy Poverty in South Africa.

[9] Agama Energy (2003). Employment Potential of Renewable Energy in South Africa.

[10] UNDP (2005). www.undp.org/energyandenvironment/. (Retrieved January 2010)

[11] Dugard, J. (2008). Power to the People?: A rights based analysis of electricity services in South Africa.

[12] DME (1998). White Paper on the Energy Policy of the Republic of South Africa

3.2. A right to electricity [13]

The South African policy framework acknowledges the relationship between poverty and electricity. However it is not viewed as an essential right but can be implied as one. Given the links between energy and the positive developmental benefits for a community, electricity should be viewed as an essential good. Unlike the right of access to sufficient water[14], in South Africa there is no enumerated right to electricity (nor is there a right to energy). However, this right can be implied in the right of access to adequate housing[15].

[13] This analysis was submitted by J Dugard and is based on, and draws from, a chapter by J Dugard (2008), entitled "Power to the People? A rights-based analysis of South Africa's electricity services", in D McDonald (ed) Electric Capitalism: Reconnecting Africa on the Power Grid (HSRC Press). Jackie Dugard writes in her capacity as Executive Director of Socio-Economic Rights Institute.

[14] Section 27(1)(b) of the Constitution

[15] Section 26(1) of the Constitution

The constitutional court declared in a landmark socio-economics rights case that the right to housing implies more than merely having a roof over your head[16]. According to the Court, the "state's obligation to provide adequate housing depends on context, and may differ from province to province, from city to city, from rural to urban areas and from person to person" and while "some may need access to land and no more … some may need access to services such as water, sewage, electricity and roads"[17]. This means that, in the Court's view, one of the factors relevant to a consideration of the right to housing is electricity provision.

This interpretation of an implied right to electricity is supported in international law by the United Nations Committee on Economic, Social and Cultural Rights (CESCR), which monitors compliance with the International Covenant on Economic, Social and Cultural Rights (ICESCR). With respect to the right to adequate housing (1991), the CESCR has stipulated, "all beneficiaries of the right to adequate housing should have sustainable access" to "energy for cooking, heating and lighting". Although the reference is to energy rather than electricity specifically, the United Nations Special Rapporteur on adequate housing, Miloon Kothari, has clarified in his reports that the right to adequate housing "includes access to essential civic services such as electricity"[18].

Moreover, this right to energy is further entrenched through the Convention on the Elimination of All Forms of Discrimination Against Women (1979), which states:

States Parties shall take all appropriate measures to eliminate discrimination against women in rural areas … to ensure … the right … to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply …

However despite being a signatory, South Africa has never ratified the ICESCR. Nonetheless, Section 39(1)(b) of the Constitution stipulates that, when interpreting the Bill of Rights, a court "must consider international law". The Constitutional Court has established that, for the purposes of interpretation, "international law would include non-binding as well as binding law"[19]. It is consequently clear that the ICESCR is relevant to the interpretation of socio-economic rights in South Africa. Taken together, there is therefore a strongly implied right to electricity in international and South African domestic law.

The inference of an implied right to electricity is that it is subject to the same obligations as the other socio-economic rights in the Bill of Rights; requiring the state to take "reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of the right"[20].

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[16] *Government of the Republic of South Africa v Grootboom* (2000).

[17] *Grootboom*, para 37

[18] Tully, S. (2006). *"The contribution of human rights to universal energy access".*

[19] S *v Makwanyane* 1995, para 35

[20] Section 27(2) of the Constitution

Therefore government programmes must "respond to the needs of the most desperate" and must ensure that social and economic rights are "made more accessible not only to a larger number of people but to a wider range of people as time progresses".[21] Such pronouncements by the Constitutional Court in the context of an implied right to electricity suggest that the state is constitutionally obliged to provide more electricity to more people, but especially to vulnerable groups such as the poor, over time.

This proposal is strengthened by the inclusion of electricity in the governments "free basic services" package. Arguably, the allocation of FBE to qualifying households, alongside Free Basic Water, is an implicit acknowledgement of a right to "sufficient" electricity along the same lines as the Constitutional right of everyone to "access to sufficient food and water".[22]

Against the backdrop of apartheid's legacy of unequal municipal services provision based on unfair discrimination on the grounds of race (and, concomitantly, on class), section 9(2) enjoins the state to take "legislative and other measures designed to protect or advance persons, or categories of persons, disadvantaged by unfair discrimination". In the case of City Council of Pretoria v Walker (1998) the Constitutional Court clarified that positive discrimination policies aimed at correcting past inequalities between formerly advantaged and disadvantaged groups do not amount to unfair discrimination. Indeed, such essentially redistributive policies, designed to promote the achievement of socio-economic equality, are not only permitted, they are constitutionally mandated. In relation to electricity services, this means that the state is obliged to ensure that positive steps are taken to make electricity increasingly accessible and affordable to poor people. In other words, the right to equality of electricity services incorporates the right to redistributive policies and practices that aim to redress socio-economic inequality.[23]

Importantly for this rights-based analysis, section 16(1)(e) of the new Electricity Regulation Act allows for "the cross-subsidy of tariffs to certain classes of customers", which clearly permits the kind of redistributive pricing policies that advance socio-economic equality.

In terms of service delivery, electricity, along with the other basic services (including water, sanitation, and refuse collection), is governed by the overall policy framework for municipal service delivery, which stresses the need to advance equal services to all members of the local community. Such equality-focused imperatives are directly relevant to practices around tariff setting, FBE and customer services.

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[21] Section 27(2) of the Constitution , paras 44-45

[22] Section 27(1)(b)

[23] Regardless of the commercialisation of Eskom and municipal electricity entities such as City Power (which operates in Johannesburg), electricity remains a public service that is 100% state-owned. As such, all policy choices by the state in relation to electricity distribution must comply with the section 9 right to equality. This right obliges the state to ensure that electricity provision is equal in the sense that there should be no unfair discrimination between groups on any ground, including those listed in section 9(3)). Going beyond this, section 9(2) requires the state to take steps to "promote the achievement of equality". As such the imposition of pre-paid meters and current limitations could be viewed as unfair and unequal.

Such criteria suggest that, where they fail to advance socio-economic equality and/or to redress poverty, electricity services may be legally challenged.

Electricity as an implied right is thus imperative to ensuring that electricity is provided to all in an equitable and just process. The implied right to electricity combined with the Free Basic Services policy established the foundation that led to the development of the FBE policy.

4. GOVERNMENT POLICY – FREE BASIC SERVICES

In 2000, the South Africa government announced its policy to provide free basic services of water, sanitation and energy to poor households. The FBE policy was released three years later and was intended to ensure that a basic supply of electricity is made available free to the poor. Eskom supplies about half the number of customers in South Africa and therefore Local Government together with Eskom assume the major responsibility for the implementation of the policy.

The policy states that “an allocation of 50kWh per month be provided to all poor households connected to the national electricity grid.” The amount is based on the UCT study that suggests that on average “56% of households consume no more than 50kWh per month. This amount is deemed sufficient energy to provide basic services for a poor household – basic lighting, Tv and radio, basic ironing and basic cooking.”

For customers who are not connected to the grid, an allocation of up to 80% subsidy of the monthly service fee will be provided for customers with non-grid systems.

In terms of the grid-connected households, there are two approaches suggested by the policy. The first is a broad-based approach, which refers to the implementation of an agreed allocation of free basic electricity to all legal household connections. The second is a self-targeted approach, which has two possible methods of implementation. The self-targeted approach either requires that the ‘poor households’ apply for a current-limited electricity supply and then become eligible for the free basic electricity allocation or that the responsible electricity Service Provider identifies households consuming, on average, less than a pre-determined amount of electricity per month and then automatically apply the free basic electricity allocation to such households. The DME has recommended a ‘Self-Targeted Approach’ for the implementation of the first phase of the FBE roll-out as it is supposedly “more accurately able to target the poor and would be less costly to implement and fund.”[24]

In terms of funding the FBE, the policy places the final responsibility for funding and implementation on the national government. It also alludes to cross-subsidisation and taxes from high electricity consumers. In general the intention of the FBE policy seems to be positive and if rolled-out correctly could be a useful instrument in addressing poverty alleviation. However, despite the efforts of government, there are several challenges in the policy and its implementation.

[24] Department of Minerals and Energy, (2003)

4.1. Policy Challenges and Implementation Constraints

The first challenge relates to the 50kWh of free electricity proposed in the policy. In particular this section focuses on whether this amount is reasonable to impact on the quality of life in poor communities. The second reviews the use of pre-paid meters that are required in order for poor homes to access the free electricity. The third challenge deals with the limits in the current that is being provided. A detailed desk-top assessment provides evidence of the constraints of limiting the amount of current used. Finally, this section reviews the various constraints with the methods of implementation proposed in the FBE policy.

4.1.1. 50kWh

The decision to allocate an amount of only 50kWh was based on the findings in the UCT study, which suggested that 56% of homes use less than 50kWh per month. The study implied that 50kWh is sufficient to provide basic lighting, TV, radio, ironing and cooking for a poor household. However the UCT study does not expand on whether people use the small amount because 50kWh is sufficient for households or because they cannot afford to pay for more electricity. From the study, 50kWh is insufficient to create a better life.

In addition, as stated previously, most poor households rely on more than one source for energy. Thus it is possible that people would use the 50kWh for lighting but continue to use paraffin, coal and wood. The intention of the policy was to ensure that a limited amount of electricity improved people's lives and that the health impacts and risks of fires are no longer a concern in their lives. Given that many people still need to rely on additional sources of energy, 50kWh may not be sufficient to improve living conditions. The Cures Report (2009) refers to an interview with Professor Anton Eberhard (Graduate School of Business, University of Cape Town) who states "the 50 kWh amount is probably not suitable for urban areas with big households and multiple energy demands, not least because the FBE amount does not take into account the typically large sizes of low-income urban households." Thus the limitations of the UCT research raises concerns about the use of its findings to inform decisions about what constitutes a suitable amount of free electricity.

4.1.2. Pre-paid meters

The FBE policy stipulates that indigent homes applying for free basic electricty will have to be fitted with a pre-paid meter. The imposition of a pre-paid meter system is a further source of inequality in access to energy. The irony then is that people have to buy vouchers to activate the free basic allowance. Given the uncertainty of income in poor households, they are often unable to buy vouchers and as a result homes are left without electricity. In addition, the unit cost of electricity is higher for those using a pre-paid meter – almost 72c/kWh as compared to metered customers who pay approximately 59c/kWh.

"How can it be free if you have to buy it?" - A member of the Gender Committee on Energy and Climate Change

During the surveys conducted it was established that people would rather not apply for 50kWh if they are forced to use a pre-paid meter. The view is that having a pre-paid meter increases their electricity costs and forces people to buy vouchers more often.

4.1.3. 20 Ampere (Amp) limit

The policy states that poor households "generally have a low demand for electricity" and thus their needs could adequately be met by restricting the current drawn from their supply to about 20 Amperes.

The limited current restricts what appliances can be used and often runs the risk of tripping the electricity. As highlighted in the background, the implied right to electricity obliges the state to ensure that electricity provision is equal. This means that everyone should receive an equal and an equitable standard of service. There should be no unfair discrimination between groups on any ground.

Dr Goyns assessed the impacts of using a 20Amp current limitation. Such a limit in current limits the maximum power demand to approximately 4.5 kW. Table 1 provides all possible combinations of any three of the essential services used in households to calculate a combined power demand for the simultaneous use of these services. In other words, what appliances can be simultaneously used in a home using a 20Amp limitation before the current trips? The results are shown in the next page.

Table 1: Essential services (cooking, heating, hot water, refrigeration and lighting) and their combined power demand

Service1	Service2	Service3	Power (kW)	Result
Warm water (washing)	Hot water (kettle/cooking)	Cooking	8.00	Current trips
Warm water (washing)	Hot water (kettle/cooking)	Space heating	6.75	Current trips
Warm water (washing)	Hot water (kettle/cooking)	Refrigeration	6.50	Current trips
Warm water (washing)	Hot water (kettle/cooking)	Lighting	6.18	Current trips
Hot water (kettle/cooking)	Cooking	Space heating	5.75	Current trips
Warm water (washing)	Cooking	Space heating	5.75	Current trips
Warm water (washing)	Cooking	Refrigeration	5.50	Current trips
Hot water (kettle/cooking)	Cooking	Refrigeration	5.50	Current trips
Warm water (washing)	Cooking	Lighting	5.18	Current trips
Hot water (kettle/cooking)	Cooking	Lighting	5.18	Current trips
Hot water (kettle/cooking)	Refrigeration	Space heating	4.25	Sufficient current
Warm water (washing)	Refrigeration	Space heating	4.25	Sufficient current
Hot water (kettle/cooking)	Lighting	Space heating	3.93	Sufficient current
Warm water (washing)	Lighting	Space heating	3.93	Sufficient current
Warm water (washing)	Refrigeration	Lighting	3.68	Sufficient current
Hot water (kettle/cooking)	Refrigeration	Lighting	3.68	Sufficient current
Cooking	Refrigeration	Space heating	3.25	Sufficient current
Cooking	Lighting	Space heating	2.93	Sufficient current
Cooking	Refrigeration	Lighting	2.68	Sufficient current
Refrigeration	Lighting	Space heating	1.43	Sufficient current

The results in Table 1 show that half the possible combinations of heating services (cooking, heating water, geysers) used simultaneously will result in exceeding or almost exceeding the 20 Amp limit of 4.5kW.

From the results the question to be asked is: Will the combination of services which result in exceeding the current limitation occur in reality? This can be answered from surveys but it is probable that a kettle can be boiled while food is being cooked and a heater is on, or that children may be bathed before cooking resulting in the element in a geyser switching on during cooking.

The 20 Amp limit places restrictions, which are likely to inconvenience the low-income household in the domestic tasks they may need to perform. In cases where thermostat controlled geysers are used there may be frustrations due to not knowing when electricity is being used by the geyser and the use of other devices would result in tripping the power.

4.1.4. Implementation

As with most policies, on paper they may look good but in practice there are difficulties. The FBE policy is no different in this regard. There are four key implementation challenges that hinder the success of the project roll-out. First is the lack of consistency in rolling-out FBE. The second problem is the lack of capacity at local government level. The self-targeting approach is the next hindrance to implementation as if forces people to use a system of pre-paid meters and current limiting technology. Finally, there is insufficient education and training for both communities and electricity providers, aspects that were mentioned during the community surveys as well as communication with the Gauteng Department of Local Government and Housing (DLGH).

First there is a high level of inconsistency in terms of roll-out of the project across the country. This is due to the fact that there are different agents responsible for implementation in different areas or regions and these agents don't seem to stick to the same guidelines or standards. As mentioned previously, the responsibility for the implementation of the policy lies with both local government and Eskom. The manner in which FBE is rolled-out differs between areas being powered by the municipalities and those being powered by Eskom. This has resulted in different services being provided. For example, some areas receive 50kWh if registered with the municipality as an indigent home, while in places such as Ekurhuleni Metropolitan Municipality, all customers are provided with 100kWh of FBE and others yet only receive FBE if they change to pre-paid meters and current limiting technology.

Second the lack of local government capacity is a big obstacle to the implementation of the policy. Within municipalities there seems to exist confusion as to whose responsibility it is to administer FBE. So for example, there is confusion as to whether FBS reside in the Chief Financial Operator's (CFO) office or in the technical department.[25] In some municipalities there are no structures to roll-out FBE.

[25] Communication with Gauteng DLGH, January 2010 (DLGH, 2010)

Third the approach of self-targeting is another aspect of the policy that affects implementation. The policy defines self-targeting as “a system whereby a household approaches the service provider, indicating the intention to be considered for benefitting from the Free Basic Electricity programme.” Ironically, many of the households interviewed implied that approaching the service provider means that their current will be limited and that a pre-paid meter will be installed resulting in higher costs.

Fourth communities are often unaware of the availability of FBE. In addition, local authorities and Eskom do not provide sufficient information to the technologies being used. As such there is inadequate communication and education with regards to the technology and service options available for communities.

5. RESEARCH AND FINDINGS

In order to explore some of these issues in further detail, the research embarked on a study to assess the amount of electricity being used in homes. The study found that 50kWh is insufficient to provide people with the basic requirements in a home.

5.1. Methodology

The selection of a research methodology is informed by the nature of question that needs to be explored. In this instance the key research questions were:

- Is 50kWh of FBE sufficient?
- What amount of free electricity is reasonable?

In order to answer these questions, 30 homes were identified to provide a non-quantitative study. While a quantitative study would have been better, this would have cost an alarming amount of money and taken an extra-ordinary long time to complete. Under the circumstances an assessment of select number of households would be sufficient to indicate whether 50kWh is adequate.

The analysis of the 50kWh allocation included two assessments. The first was an energy audit of 30 homes in Gauteng. The number of homes selected was due to the number of women in the Gender Committee on Energy and Climate Change. The homes were located in low-income urban areas including, Evaton, Kwa-Thema, Soshanguve, Winterveld, Alexandra, Khutsong, Soweto and Thokoza. The houses ranged from RDP homes to electrified informal settlements.

The audits were carried out by the Gender Committee on Energy and Climate Change and were conducted over a specific number of days. Numerous workshops were held to monitor the research and to respond to any concerns or queries experienced by the gender forum in obtaining and understanding the data being collected. Importantly, many of the women who participated in the research had intimated that their understanding of energy use had increased and that they were more aware of how to save energy and thus save their money. This aspect may have impacted on the final amount of electricity normally used in the homes and the figures may thus be less than before the research began. Most of the women (75%) who participated in the research head the households and thus were ideally situated to obtain the data required for the energy audits.

The second aspect of the research included a desk top study compiled by Dr P Goyns[26] specifically on what 50kWh can be used for and for how long. In addition, this part of the research assesses the impacts of using a 20Amp current limitation. The process followed was to divide the 50kWh monthly allowance into a daily consumption of 1.64kWh and then to consider what this would contribute to the estimated energy consumption of the household.

[26] Dr P Goyns provided a desktop analysis of energy use in his capacity as the coordinator of the Enerkey project in Gauteng. The Enerkey project is an energy related partnership between Germany and South Africa.

5.2. Energy Audit Findings

The preliminary findings of the household surveys indicate that the average number of people per home was five, with most homes headed by women. The type of homes ranged from RDP homes to formal settlements and bonded homes. In general, most homes had an average monthly income of R1300.00. Many homes did not have a stable source of income and thus this figure changes on a monthly basis. The childcare and old age grants are vital to the survival of many families as it is often the only source of income. There were only a few (approximately 25%) who had access to the FBE allocation, while majority of the participating homes were using prepaid meters (65%). On average, homes with pre-paid meters were purchasing electricity vouchers valued at R120.00 every week. In general the amount spent on electricity depended on household income and varied from R100 to more than R800. On average households spent about R310 a month on energy. Furthermore, it was very clear that 50kWh per month is not sufficient to improve people's basic living. The audits illustrated that homes use on average 750kWh per month, which means that the free allocation is a mere 6.6% of monthly electricity use. In households without geysers, approximately 500kWh to 600kWh is consumed, while households with geysers consume between 900kWh and 1300kWh of energy.

Most of the electricity is used for cooking, refrigeration, water heating, and lighting. In cases where homes have electric geysers, the audits showed that the bulk of energy (approximately 40%) is used by geysers. The second major user of energy was used for cooking where in some cases was responsible for almost 35% of energy use. The study was conducted during a warm period in South Africa and thus the audits did not ascertain the amount of energy that would be used for space heating, which can also be a substantial user of energy.

5.3. Desktop Findings

Dr Philip Goyns conducted a desktop study on what 50kWh can be used for and for how long. The process followed was to divide the 50kWh monthly allowance into a daily consumption of 1.64kWh and then to consider what this would contribute to the estimated energy consumption of the household. Appliance information used was taken from the Eskom energy efficiency and demand side management website. Additional appliances were added using typical power values from labels on house appliances.

Appliances were grouped into nine services representing groups of activities that consume electricity in the household. The services include: space heating; cleaning; communication/information; entertainment; lighting; hot water (kettle/cooking); cooking; warm water (washing); and refrigeration.
An initial estimate of energy demand is calculated in Table 2 from the average power demand of the nine services multiplied by the number of devices and an estimate of the number of hours they are used per day.

Table 2: Basic services and their energy demand

Services	Ave Power (kW)	Number of devices	Estimated hours operation per day (summer)	Estimated hours operation per day (winter)	Total kWh per day (summer)	Total kWh per day (winter)
Space heating	0.75	1	0.0	5.0	0.0	3.8
Cleaning	1.20	1	0.1	0.1	0.1	0.1
Communication/Information	0.45	1	2.0	2.0	0.9	0.9
Entertainment	0.20	1	5.0	5.0	1.0	1.0
Lighting	0.02	3	6.0	8.0	0.4	0.5
Hot Water (Kettle/Cooking)	3.00	1	0.5	0.5	1.5	1.5
Cooking	2.00	1	1.0	1.0	2.0	2.0
Warm Water (Washing)	3.00	1	1.0	1.0	3.0	3.0
Refrigeration	0.15	1	12.0	8.0	1.8	1.2
			Total daily consumption		**10.7**	**14.0**
			Total monthly consumption		**321**	**420**

From the results in Table 2 the allowance of 1.64 kWh per day provides between 11% and 15% of the required energy depending on the season. A second calculation was performed excluding non-essential energy services. The services included and the results are shown in Table 3.

Table 3: Essential services and their energy demand

Services	Ave Power (kW)	Number of devices	Estimated hours operation per day (summer)	Estimated hours operation per day (winter)	Total kWh per day (summer)	Total kWh per day (winter)
Space heating	0.75	1	0.0	5.0	0.0	3.8
Lighting	0.02	3	6.0	8.0	0.4	0.5
Hot water (kettle/cooking)	3.00	1	0.5	0.5	1.5	1.5
Cooking	2.00	1	1.0	1.0	2.0	2.0
Warm water (washing)	3.00	1	1.0	1.0	3.0	3.0
Refrigeration	0.15	1	12.0	8.0	1.8	1.2
			Total daily consumption		**8.7**	**11.9**
			Total monthly consumption		**261**	**357**

For essential electricity services FBE provides between 14% and 19% of the electricity demand. From the estimated energy demand based on common household electricity services FBE provides between 10% and 20% of the low-income household energy demand.

In essence, four light bulbs of 60W used for four hours a day for a month will consume 20kWh, an electric stove that is used for one and a quarter hours a day for a month uses 52.5kWh and boiling a kettle for at least 30 minutes a day for a month uses 21kWh. This is evidence of how little 50kWh will go in a household. The 50 kWh allocation per day is clearly inadequate to provide the hot water, cooking or heating needs of low-income households.

5.4. Revised FBE for Eskom

It is clear from both the community surveys and desktop assessment that 50kWh per household per month is insufficient to meet basic needs. The policy is important to uplift the lives of millions of poor people; however, 50kWh will not achieve that goal. Earthlife Africa Jhb proposes that a minimum of 50kWh per household be provided per week. This will amount to a minimum of 200kWh per household per month and amounts to only 26% of the monthly average of 750kWh calculated in the energy surveys. Although this figure is still a bit low, it will be a bit more realistic in terms of what people need to improve their lives and within the capacity of the current system to provide. In addition, Earthlife proposes that this amount be given to all households with an increasing step-block tariff. Thus once 200kWh has been consumed then households will be charged according to their use.

The counter argument will probably revolve around the lack of electricity available to give the amount to all households as well as the cost of providing free electricity. Both of these are dealt with in the section below.

6. FUNDING MODEL

Earthlife Africa Johannesburg is proposing that 200kWh of free electricity be provided to all households each month. In 2002, the Department of Minerals and Energy stated that there were 6.4 million households connected to the national grid.[27] Eskom provides electricity to 4,163,263 households according to Eskom's 2008-2009 figures (See Annexure).

The FBE model proposed will equate to an increase of capacity from 8,263 GWh[28] to 13,499GWh, resulting in an additional 5,236GWh of electricity that will have to be sourced. Roughly, this amounts to 17.5% of Medupi's capacity or 50% of government's renewable energy target. It must be noted that relative to Megaflex users this amount is very small. Megaflex users consume 66% (146,189GWh) of all electricity generated from Eskom's 13 coal-fired power stations (222,908GWh).

Furthermore, the model will result in a loss of earnings of approximately R1,586 billion to Eskom. It is suggested that high energy users, especially industry, pay according to the amount of electricity used – the more you use the more you pay. Table 4 (below) provides a breakdown of the number of electricity users relative to the amount of electricity being used. The bulk of residential energy use is in the 0 to 400 kWh range. The model proposes that the first 200kWh be provided free to all users after which a step block tariff is implemented.

The cost was based on an average of the base retail price (R0.67) in 2008/2009 received from Eskom. The step block tariff proposed increases every 100kWh. The first increase is 10% above the base cost; thereafter the increase is 5% every 100kWh. As such, high-usage domestic users will be subsidising low-usage domestic users. In this way, high level domestic users will be penalised for their high usage while at the same time will have an incentive to reduce their use thus reducing peak demand.

The bulk of Eskom's new build (R1.3 trillion in total) will be used to meet the needs of large industry users, yet the returns gained from sale to them are too low to fund new build in any meaningful manner. It is thus proposed that there must be meaningful cross-subsidisation of low energy users. For example, if bulk Megaflex users have to pay a 1.5c levy, it would amount to R2,193 billion – more than enough to fund the FBE. Moreover the environmental levy being paid by Eskom could also be directed to funding FBE. The 2009/2010 amount was R3,647 billion.

[27] Department of Minerals and Energy, 2003

[28] Eskom Summary of residential users 2008-2009, Annexure

The costing structure outlined in this report starts with the assumption that Eskom would receive 100% payment from domestic consumers. The rationale behind the assumption is that repayment is an operational issue within Eskom (or a municipality) and not a specific policy issue. However, it is reasonable to expect, even in the best run system, a level of default on payment for one reason or another. The following indicates the cost of FBE given an average default on payments of 10%, 20% and 30% for illustrative purposes:

1. With an average default rate of 10% per block, Eskom revenue would drop by a total of R334million
2. With an average default rate of 20% per block, Eskom revenue would drop by a total of R667million
3. With an average default rate of 30% per block, Eskom revenue would drop by a total of R1billion

The other major factor in the cost structure of FBE with a rising block tariff is elasticity within consumption patterns. It is probable that individuals (especially high-income users) will seek to reduce their consumption through a variety of energy efficiency measures, such as solar water geysers, insulation, PV panels, more efficient lights and appliances, heat pumps, natural gas, etc. This would have obvious financial impacts on revenue. However, reducing consumption would be one of the primary benefits of the proposed system, as reductions in capacity requirements (especially peak power requirements) would be to the overall benefit. Also, there would be a boost to the domestic energy efficiency sector and job creation within it.

In order to deal with elasticity issues, any proposed rising block tariff structure would have to be reviewed and adapted on a yearly basis for the first three years of operation. This would enable fine-tuning in response to customer adaptation and behaviour change.

The South African government often refers to “building a world class” city, country or province. The definition of “world class” mostly relates to large infrastructure projects and deals such as the hosting of the World Cup in “world class” stadia or creating a “world class” broadband link as being done by Siemens and City of Johannesburg and costing at least R1 billion. In trying to reach this goal of “world class”, government always manages to find funds for these large projects. However, when it comes to socio-economic challenges, it seems as if the projects lack the same kind of enthusiasm. A “world class” place should be one that has no hunger or poverty, no unemployment. As such government should explore all options to fund such projects with the same passion and enthusiasm as seen in relation to the World Cup.

Table 4: Cost of FBE

Cost of FBE calculated on Eskom's base retail price (2008/2009)											
kWh	# of users	kWh per annum	FBE (kWh per annum)	kWh per annum minus FBE	c/kWh	Revenue, ZAR	Profit/loss on block	Average monthly charge per household	10% debt	20% debt	30% debt
0-200	3,066,797.00	7,360,312,800.00	7,360,312,800.00	0.00	0.0000	(4,931,409,576.00)	(4,931,409,576.00)				
201-250	256,539.00	672,132,689.00	615,693,600.00	56,439,089.00	0.6700	37,814,189.63	(374,700,522.37)	12.28344411	34,032,770.67	30,251,351.70	26,469,932.74
251-300	192,918.00	614,998,253.00	463,003,200.00	151,995,053.00	0.6700	101,836,685.51	(208,375,458.49)	43.98962491	91,653,016.96	81,469,348.41	71,285,679.86
301-350	148,659.00	561,574,430.00	356,781,600.00	204,792,830.00	0.7370	150,932,315.71	(112,015,723.49)	84.60767916	135,839,084.14	120,745,852.57	105,652,621.00
351-400	101,217.00	438,974,865.00	242,920,800.00	196,054,065.00	0.7370	144,491,845.91	(34,540,783.70)	118.9621028	130,042,661.31	115,593,476.72	101,144,292.13
401-450	57,615.00	286,610,884.00	138,276,000.00	148,334,884.00	0.7705	114,292,028.12	7,750,370.12	165.3100005	102,862,825.31	91,433,622.50	80,004,419.69
451-500	62,177.00	340,079,879.00	149,224,800.00	190,855,079.00	0.7705	147,053,838.37	32,076,129.97	197.0903474	132,348,454.53	117,643,070.70	102,937,686.86
501-550	36,120.00	222,034,968.00	86,688,000.00	135,346,968.00	0.8040	108,818,962.27	39,121,810.27	251.0588831	97,937,066.04	87,055,169.82	76,173,273.59
551-600	37,574.00	248,291,035.00	90,177,600.00	158,113,435.00	0.8040	127,123,201.74	54,620,411.34	281.939643	114,410,881.57	101,698,561.39	88,986,241.22
601-650	22,000.00	158,724,770.00	52,800,000.00	105,924,770.00	0.8375	88,711,994.88	44,491,994.88	336.0302836	79,840,795.39	70,969,595.90	62,098,396.41
651-700	29,093.00	230,596,772.00	69,823,200.00	160,773,572.00	0.8375	134,647,866.55	76,170,936.55	385.6823135	121,183,079.90	107,718,293.24	94,253,506.59
701-750	10,990.00	90,308,851.00	26,376,000.00	63,932,851.00	0.8710	55,685,513.22	32,712,017.22	422.2438066	50,116,961.90	44,548,410.58	38,979,859.25
751-800	22,821.00	207,660,511.00	54,770,400.00	152,890,111.00	0.8710	133,167,286.68	85,462,268.28	486.2746545	119,850,558.01	106,533,829.34	93,217,100.68
801-850	8,097.00	78,285,016.00	19,432,800.00	58,852,216.00	0.9380	55,203,378.61	36,975,412.21	568.1464185	49,683,040.75	44,162,702.89	38,642,365.03
851-900	14,373.00	147,989,391.00	34,495,200.00	113,494,191.00	0.9380	106,457,551.16	74,101,053.56	617.2310997	95,811,796.04	85,166,040.93	74,520,285.81
901-950	7,213.00	75,810,677.00	17,311,200.00	58,499,477.00	0.9715	56,832,241.91	40,014,411.11	656.5950588	51,149,017.71	45,465,793.52	39,782,569.33
951-1000	11,026.00	126,757,110.00	26,462,400.00	100,294,710.00	0.9715	97,436,310.77	71,728,089.17	736.4132563	87,692,679.69	77,949,048.61	68,205,417.54
1001-1050	3,995.00	48,513,392.00	9,588,000.00	38,925,392.00	1.0050	39,120,018.96	29,484,078.96	816.0204205	35,208,017.06	31,296,015.17	27,384,013.27
1051-1100	9,431.00	118,189,127.00	22,634,400.00	95,554,727.00	1.0050	96,032,500.64	73,284,928.64	848.5535348	86,429,250.57	76,826,000.51	67,222,750.44
1101-1150	2,713.00	36,163,464.00	6,511,200.00	29,652,264.00	1.0385	30,793,876.16	24,031,994.96	945.8740682	27,714,488.55	24,635,100.93	21,555,713.31
1151-1200	6,944.00	96,717,420.00	16,665,600.00	80,051,820.00	1.0385	83,133,815.07	65,826,589.47	997.6696317	74,820,433.56	66,507,052.06	58,193,670.55
1201-1250	2,520.00	35,657,332.00	6,048,000.00	29,609,332.00	1.0720	31,741,203.90	25,257,747.90	1049.642986	28,567,083.51	25,392,963.12	22,218,842.73
1251-1300	5,601.00	85,105,928.00	13,442,400.00	71,663,528.00	1.1055	79,224,030.20	64,363,457.00	1178.718535	71,301,627.18	63,379,224.16	55,456,821.14
1301-1350	1,428.00	22,249,456.00	3,427,200.00	18,822,256.00	1.1390	21,438,549.58	17,534,968.78	1251.082492	19,294,694.63	17,150,839.67	15,006,984.71
1351-1400	4,838.00	79,139,696.00	11,611,200.00	67,528,496.00	1.1390	76,914,956.94	63,689,800.14	1324.840791	69,223,461.25	61,531,965.56	53,840,469.86
1401-1450	1,196.00	19,513,694.00	2,870,400.00	16,643,294.00	1.1725	19,514,262.22	16,148,718.22	1359.689396	17,562,835.99	15,611,409.77	13,659,983.55
1451-1500	3,695.00	60,248,051.00	8,868,000.00	51,380,051.00	1.1725	60,243,109.80	49,845,379.80	1358.662828	54,218,798.82	48,194,487.84	42,170,176.86
>1500	35,674.00	1,036,090,981.00	85,617,600.00	950,473,381.00	1.2060	1,146,270,897.49	1,043,016,071.89	2677.652486	1,031,643,807.74	917,016,717.99	802,389,628.24
Total w/ FBE Cost	**4,163,264.00**	**13,498,731,442.00**	**9,991,833,600.00**	**3,506,897,842.00**		**(1,586,477,144.01)**		0	**3,010,439,188.79**	**2,675,945,945.59**	**2,341,452,702.39**
Total w/o FBE cost	**1,096,467.00**	**6,138,418,642.00**	**2,631,520,800.00**	**3,506,897,842.00**		**3,344,932,431.99**			**334,493,243.20**	**668,986,486.40**	**1,003,479,729.60**

7. CONCLUSION

Poverty alleviation is an important challenge for the country. The links between poverty and energy are clear. As such the policy on free basic electricity is an important key to uplifting the poor. However, the policy's proposed 50kWh is insufficient to improve people's lives as demonstrated by both the surveys and desktop analysis. Instead of a policy taking a lead to positive change, it has resulted in stagnating any hope of growth or development.

Earthlife Africa believes that a minimum of 200kWh per household per month is needed in order to start making significant changes in poor people's lives. The existing method of providing free electricity has had some challenges including an incomplete indigent list, resistance to using pre-paid meters and limiting current. It is thus proposed that all households be provided with FBE with an increasing step block tariff based on the amount of electricity used. The shortfall should be obtained through cross-subsidisation, levies and taxes. It is through ensuring that people's lives are significantly better that the war on poverty can be overcome.

8. BIBLIOGRAPHY

Agama Energy (2003). Employment Potential of Renewable Energy in South Africa . Johannesburg: The Sustainable Energy and Climate Change Partnership of Earthlife Africa.

Anthony Egan and Alex Wafer (2004). The Soweto Electrcity Crisis Committee, http://www.ukzn.ac.za/ccs/. (Retrieved November 16, 2009)

Cures. (2009). Exploring Energy Poverty in South Africa. Cures Discussion Document .

Davie, K. (2009, November - December 27-3). Kilowatts at your fingertips. Mail and Guardian .

Department of Minerals and Energy. (2003). Electricity Basic Services Support Tariff (Free Basic Electrcity) Policy. Department of Minerals and Energy.

Department of Local Government and Housing. Telephone conversation with R Musiyariwa (2010, January 18).

DME. (2003). Guidelines for the Introduction of Free Basic Electricity Service. DME.

DME. (1998). White Paper on the Energy Policy of the Republic of South Africa. Pretoria: DME.

Dugard, J. (2008). Power to the People?: A rights based analysis of electricity services in South Africa.

Earthlife Africa Johannesburg. (2009). SE Briefing: Eskom costs and tariffs. Sustainable Energy Briefing 18 . Johannesburg.

Eberhard, A. (2004, April). (PESD, Stanford University) Retrieved November 15, 2009, from http://pesd.stanford.edu.

Eberhard, A. (2004, July 29). http://fsi.stanford.edu/news/electricity_reform_in_south_africa_is_at_a_crtical_juncture_says_anton_eberhard_20040831. Retrieved November 17, 2009

Edited by Mark Butler and David Hallowes. (2002). The cost of living: how selling basic services excludes the poor. Durban: Groundwork.

Fiil-Flynn, M. (2001). "The electricity crisis in Soweto". Occasional Paper no. 4. Cape Town: Municipal Services Project (MSP).

Gaunt, C. T. (2003). Meeting electrification's social objectives in South Africa, and implications for developing countries. http://www.sciencedirect.com/science Retrieved November 15, 2009

Hallowes, D. (2009). The World bank and Eskom: Banking on Climate Destruction. Groundwork Report . Pietermaritzburg: groundWork.

Kothari, M. (2002). "Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living". United Nations Commission on Human Rights E/CN.4/2002/59.

Kumar, A. (2009). http://www.engineeringreview.com.pk/Articles.htm. Retrieved November 16, 2009

Mark Howells, D. G. (2005, July). Working Paper number 42. (PESD, Stanford University) Retrieved November 15, 2009, from http://pesd.standford.edu.

Nefale, M. a. (2003). "Promoting access to affordable electricity: Comments on the draft Electricity Distribution Industry Restructuring Bill". Economic & Social Rights (ESR) Review 4, no. 4.

Stephen Davis, A. H. (2008, August). Working Paper number 80. (PESD, Stanford University) Retrieved November 16, 2009, from http://pesd.stanford.edu.

Tully, S. (2006). "The contribution of human rights to universal energy access". . Northwestern University Journal of International Human Rights 4.

UCT, Eskom, & DME. (2002). Options for a Basic Electricity Support Tariff: Analysis, issues and recommendations.

UNDP. (2005, August). Retrieved January 2010, from www.undp.org/energyandenvironment/.

World Economic Forum. Energy and Poverty. http://www.weforum.org/en/initiatives/EnergyPovertyAction/index.htm. Retrieved February 01, 2010

ANNEXURE

The tables were obtained from Eskom and provide statistics of residential electricity use for 2008/2009.

Total for all residential tariffs exl Homepower Bulk

Total for all residential tariffs exl Homepower Bulk	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption per month	5. Total revenue (R)	6. Average payment per customer (R)	7. Average price (c/kWh)
0-50	110,518,672	9,209,889	1,629,374	6	R 5,597,399	R 3.44	60.78
51-100	471,356,520	39,279,710	541,093	73	R 25,518,924	R 47.16	64.97
101-150	745,114,374	62,092,864	505,473	123	R 38,438,878	R 76.05	61.91
151-200	798,329,958	66,527,497	390,857	170	R 42,150,667	R 107.84	63.36
201-250	672,132,689	56,011,057	256,539	218	R 34,734,698	R 135.40	62.01
251-300	614,998,253	51,249,854	192,918	266	R 33,163,637	R 171.91	64.71
301-350	561,574,430	46,797,869	148,659	315	R 29,291,446	R 197.04	62.59
351-400	438,974,865	36,581,239	101,217	361	R 24,380,002	R 240.87	66.65
401-450	286,610,884	23,884,240	57,615	415	R 14,856,302	R 257.85	62.20
451-500	340,079,879	28,339,990	62,177	456	R 19,195,526	R 308.72	67.73
501-550	222,034,968	18,502,914	36,120	512	R 11,575,137	R 320.47	62.56
551-600	248,291,035	20,690,920	37,574	551	R 13,923,389	R 370.56	67.29
601-650	158,724,770	13,227,064	22,000	601	R 8,405,619	R 382.08	63.55
651-700	230,596,772	19,216,398	29,093	661	R 12,756,664	R 438.48	66.38
701-750	90,308,851	7,525,738	10,990	685	R 4,686,254	R 426.41	62.27
751-800	207,660,511	17,305,043	22,821	758	R 11,400,079	R 499.54	65.88
801-850	78,285,016	6,523,751	8,097	806	R 4,049,106	R 500.07	62.07
851-900	147,989,391	12,332,449	14,373	858	R 7,982,395	R 555.37	64.73
901-950	75,810,677	6,317,556	7,213	876	R 4,004,179	R 555.15	63.38
951-1000	126,757,110	10,563,092	11,026	958	R 6,771,797	R 614.15	64.11
1001-1050	48,513,392	4,042,783	3,995	1012	R 2,487,575	R 622.65	61.53
1051-1100	118,189,127	9,849,094	9,431	1044	R 6,258,498	R 663.58	63.54
1101-1150	36,163,464	3,013,622	2,713	1111	R 1,864,321	R 687.26	61.86
1151-1200	96,717,420	8,059,785	6,944	1161	R 5,037,978	R 725.57	62.51
1201-1250	35,657,332	2,971,444	2,520	1179	R 1,872,812	R 743.13	63.03
1251-1300	85,105,928	7,092,161	5,601	1266	R 4,405,308	R 786.57	62.12
1301-1350	22,249,456	1,854,121	1,428	1298	R 1,149,744	R 805.05	62.01
1351-1400	79,139,696	6,594,975	4,838	1363	R 3,883,940	R 802.76	58.89
1401-1450	19,513,694	1,626,141	1,196	1360	R 1,006,012	R 841.50	61.86
1451-1500	60,248,051	5,020,671	3,695	1359	R 3,307,461	R 895.24	65.88
>1500	1,036,090,981	86,340,915	35,674	2420	R 51,535,238	R 1,444.64	59.69
Total	8,263,738,167	688,644,847	4,163,263	165	R 435,690,987	R 104.65	63.27

Homelight 1 20A (non FBE)

Homelight 1 20A (non FBE)	Total consumption per annum	Total consumption per month	Average no of customers	Average consumption /cust/month	Total revenue (R)	Average payable per month (R)	Average price c/kWh
0-50	69,900,268	5,825,022	857,991	7	R 3,463,558	R 4	59.46
51-100	218,135,176	18,177,931	252,982	72	R 10,808,598	R 43	59.46
101-150	293,113,902	24,426,158	200,918	122	R 14,523,794	R 72	59.46
151-200	314,951,279	26,245,940	154,127	170	R 15,605,836	R 101	59.46
201-250	233,479,879	19,456,657	88,594	220	R 11,568,928	R 131	59.46
251-300	212,695,964	17,724,664	65,746	270	R 10,539,085	R 160	59.46
301-350	174,676,759	14,556,397	44,469	327	R 8,655,233	R 195	59.46
351-400	89,740,462	7,478,372	20,061	373	R 4,446,640	R 222	59.46
401-450	81,092,766	6,757,731	15,918	425	R 4,018,147	R 252	59.46
451-500	41,247,440	3,437,287	7,261	473	R 2,043,811	R 281	59.46
501-550	58,529,872	4,877,489	9,426	517	R 2,900,155	R 308	59.46
551-600	31,382,068	2,615,172	4,503	581	R 1,554,981	R 345	59.46
601-650	16,673,241	1,389,437	2,219	626	R 826,159	R 372	59.46
651-700	27,944,713	2,328,726	3,438	677	R 1,384,661	R 403	59.46
701-750	11,952,954	996,080	1,367	729	R 592,269	R 433	59.46
751-800	10,703,952	891,996	1,153	774	R 530,381	R 460	59.46
801-850	13,894,231	1,157,853	1,381	839	R 688,459	R 499	59.46
851-900	5,679,944	473,329	537	881	R 281,441	R 524	59.46
901-950	5,327,698	443,975	477	931	R 263,987	R 554	59.46
951-1000	2,672,911	222,743	229	973	R 132,443	R 579	59.46
1001-1050	8,579,448	714,954	701	1,020	R 425,112	R 606	59.46
1051-1100	2,280,378	190,032	178	1,071	R 112,993	R 637	59.46
1101-1150	2,740,968	228,414	205	1,115	R 135,815	R 663	59.46
1151-1200	4,218,574	351,548	298	1,181	R 209,030	R 702	59.46
1201-1250	1,306,777	108,898	89	1,222	R 64,751	R 727	59.46
1251-1300	1,844,406	153,700	121	1,272	R 91,390	R 756	59.46
1301-1350	1,150,088	95,841	72	1,325	R 56,987	R 788	59.46
1351-1400	3,021,852	251,821	185	1,362	R 149,733	R 810	59.46
1401-1450	1,078,302	89,859	63	1,430	R 53,430	R 850	59.46
1451-1500	1,170,492	97,541	66	1,476	R 57,998	R 878	59.46
>1500	15,656,885	1,304,740	616	2,118	R 775,799	R 1,259	59.46
Total (Summary)	1,956,843,647	163,070,304	1,735,389	94	R 96,961,603	R 56	59.46

Homelight 1 20A (FBE)

Homelight 1 20A (FBE)	1. Total consumption per annum	2. Total consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-50	3,102,935	258,578	239,595	1	R 153,750	R 0	0.00
51-100	103,981,364	8,665,114	111,342	78	R 5,152,277	R 17	21.26
101-150	167,093,995	13,924,500	114,193	122	R 8,279,507	R 43	35.08
151-200	179,708,299	14,975,692	87,670	171	R 8,904,546	R 72	42.06
201-250	160,910,825	13,409,235	60,932	220	R 7,973,131	R 101	45.95
251-300	120,591,058	10,049,255	37,274	270	R 5,975,287	R 131	48.43
301-350	99,210,949	8,267,579	25,789	321	R 4,915,903	R 161	50.19
351-400	69,861,930	5,821,828	15,564	374	R 3,461,659	R 193	51.51
401-450	52,021,322	4,335,110	10,208	425	R 2,577,657	R 223	52.46
451-500	33,843,926	2,820,327	5,947	474	R 1,676,967	R 252	53.19
501-550	24,103,426	2,008,619	3,843	523	R 1,194,325	R 281	53.77
551-600	20,876,980	1,739,748	3,047	571	R 1,034,454	R 310	54.25
601-650	15,842,255	1,320,188	2,112	625	R 784,984	R 342	54.70
651-700	9,307,406	775,617	1,146	677	R 461,182	R 373	55.07
701-750	8,624,460	718,705	989	727	R 427,342	R 402	55.37
751-800	7,027,783	585,649	753	777	R 348,227	R 432	55.64
801-850	4,713,459	392,788	475	827	R 233,552	R 462	55.87
851-900	4,426,545	368,879	418	883	R 219,335	R 495	56.09
901-950	3,148,990	262,416	281	934	R 156,032	R 525	56.28
951-1000	1,951,996	162,666	166	980	R 96,721	R 553	56.43
1001-1050	1,544,140	128,678	126	1,025	R 76,512	R 580	56.56
1051-1100	2,001,315	166,776	156	1,070	R 99,165	R 607	56.68
1101-1150	1,587,580	132,298	118	1,119	R 78,665	R 636	56.80
1151-1200	1,089,404	90,784	78	1,169	R 53,980	R 665	56.92
1201-1250	1,235,310	102,943	84	1,227	R 61,210	R 700	57.04
1251-1300	710,900	59,242	46	1,276	R 35,225	R 729	57.13
1301-1350	591,452	49,288	37	1,323	R 29,306	R 757	57.21
1351-1400	586,047	48,837	36	1,372	R 29,039	R 786	57.29
1401-1450	669,921	55,827	39	1,416	R 33,195	R 812	57.36
1451-1500	605,705	50,475	34	1,470	R 30,013	R 844	57.44
>1500	6,043,413	503,618	196	2,576	R 299,451	R 1,502	58.31
Total	1,107,015,089	92,251,257	722,694	128	R 54,852,598	R 46	36.17

Homelight 1 60A (non FBE)

Homelight 1 60A (non FBE)	1. Total consumption per annum	2. Total consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-50	32,208,525	2,684,044	375,972	7	R 1,796,430	R 5	66.93
51-100	100,218,690	8,351,557	113,735	73	R 5,589,697	R 49	66.93
101-150	188,133,516	15,677,793	120,563	130	R 10,493,147	R 87	66.93
151-200	158,644,093	13,220,341	74,832	177	R 8,848,374	R 118	66.93
201-250	159,153,039	13,262,753	58,778	226	R 8,876,761	R 151	66.93
251-300	126,844,838	10,570,403	39,059	271	R 7,074,771	R 181	66.93
301-350	183,760,586	15,313,382	48,540	315	R 10,249,247	R 211	66.93
351-400	110,491,193	9,207,599	24,436	377	R 6,162,646	R 252	66.93
401-450	65,086,057	5,423,838	12,835	423	R 3,630,175	R 283	66.93
451-500	110,424,041	9,202,003	19,790	465	R 6,158,901	R 311	66.93
501-550	65,326,537	5,443,878	10,335	527	R 3,643,588	R 353	66.93
551-600	39,257,768	3,271,481	5,697	574	R 2,189,602	R 384	66.93
601-650	74,600,965	6,216,747	10,128	614	R 4,160,869	R 411	66.93
651-700	42,200,832	3,516,736	5,222	673	R 2,353,751	R 451	66.93
701-750	24,997,807	2,083,151	2,877	724	R 1,394,253	R 485	66.93
751-800	53,472,416	4,456,035	5,818	766	R 2,982,424	R 513	66.93
801-850	21,514,491	1,792,874	2,165	828	R 1,199,971	R 554	66.93
851-900	15,407,222	1,283,935	1,472	872	R 859,338	R 584	66.93
901-950	37,393,611	3,116,134	3,411	914	R 2,085,629	R 611	66.93
951-1000	15,100,543	1,258,379	1,285	979	R 842,233	R 655	66.93
1001-1050	11,488,698	957,391	928	1,031	R 640,782	R 690	66.93
1051-1100	18,608,939	1,550,745	1,457	1,065	R 1,037,914	R 713	66.93
1101-1150	10,279,108	856,592	760	1,127	R 573,317	R 755	66.93
1151-1200	7,062,796	588,566	500	1,177	R 393,927	R 787	66.93
1201-1250	16,275,691	1,356,308	1,119	1,213	R 907,777	R 812	66.93
1251-1300	6,896,299	574,692	450	1,278	R 384,641	R 855	66.93
1301-1350	6,935,391	577,949	438	1,320	R 386,821	R 883	66.93
1351-1400	9,881,868	823,489	604	1,363	R 551,161	R 913	66.93
1401-1450	5,835,093	486,258	340	1,429	R 325,452	R 957	66.93
1451-1500	2,577,209	214,767	145	1,479	R 143,744	R 990	66.93
>1500	87,692,395	7,307,700	3,472	2,105	R 4,891,043	R 1,409	66.93
Homelight 1 60A (non FBE)	1,807,770,255	150,647,521	947,161	159	R 100,828,386	R 106	66.93

Homelight 1 60A (FBE)

Homelight 1 60A (FBE)	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-50	1,434,072	119,506	93,410	1	R 79,985	R 0	0.00
51-100	31,176,243	2,598,020	33,566	77	R 1,738,855	R 18	23.69
101-150	65,364,799	5,447,067	43,526	125	R 3,645,722	R 50	40.19
151-200	86,690,151	7,224,179	40,907	177	R 4,835,143	R 85	47.98
201-250	81,395,127	6,782,927	29,895	227	R 4,539,813	R 118	52.18
251-300	69,792,930	5,816,078	21,125	275	R 3,892,701	R 151	54.78
301-350	61,349,678	5,112,473	15,900	322	R 3,421,778	R 182	56.52
351-400	63,183,809	5,265,317	14,244	370	R 3,524,077	R 214	57.88
401-450	47,619,223	3,968,269	9,371	423	R 2,655,962	R 250	59.03
451-500	33,589,003	2,799,084	5,928	472	R 1,873,427	R 283	59.84
501-550	32,900,859	2,741,738	5,275	520	R 1,835,045	R 314	60.49
551-600	23,407,752	1,950,646	3,403	573	R 1,305,567	R 350	61.09
601-650	16,682,063	1,390,172	2,236	622	R 930,442	R 383	61.55
651-700	16,166,854	1,347,238	2,014	669	R 901,706	R 414	61.93
701-750	12,421,760	1,035,147	1,437	720	R 692,824	R 449	62.28
751-800	8,850,919	737,577	955	772	R 493,660	R 483	62.60
801-850	8,697,585	724,799	884	820	R 485,108	R 515	62.85
851-900	5,588,403	465,700	534	873	R 311,693	R 551	63.10
901-950	4,482,563	373,547	406	920	R 250,015	R 582	63.29
951-1000	4,843,034	403,586	417	969	R 270,120	R 615	63.48
1001-1050	3,666,877	305,573	299	1,022	R 204,520	R 651	63.66
1051-1100	2,693,617	224,468	209	1,076	R 150,236	R 687	63.82
1101-1150	2,652,312	221,026	198	1,119	R 147,933	R 716	63.94
1151-1200	1,808,090	150,674	129	1,173	R 100,846	R 751	64.08
1201-1250	1,729,696	144,141	118	1,222	R 96,474	R 784	64.19
1251-1300	1,845,643	153,804	121	1,268	R 102,941	R 815	64.29
1301-1350	1,467,453	122,288	93	1,320	R 81,847	R 850	64.39
1351-1400	1,157,758	96,480	70	1,370	R 64,574	R 884	64.49
1401-1450	1,163,915	96,993	68	1,418	R 64,917	R 915	64.57
1451-1500	944,511	78,709	53	1,473	R 52,680	R 953	64.66
>1500	12,205,942	1,017,162	444	2,289	R 680,786	R 1,498	65.47
Total	706,972,639	58,914,387	327,232	180	R 39,431,399	R 87	48.34

Homelight 2 20A (non FBE)

Homelight 2 20A (non FBE)	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-50	1,091,863	90,989	18,215	5	R 47,087	R 3	51.75
51-100	3,849,166	320,764	4,041	79	R 165,995	R 41	51.75
101-150	4,372,541	364,378	2,920	125	R 188,566	R 65	51.75
151-200	8,104,297	675,358	3,803	178	R 349,498	R 92	51.75
201-250	5,964,145	497,012	2,198	226	R 257,204	R 117	51.75
251-300	7,467,911	622,326	2,250	277	R 322,054	R 143	51.75
301-350	5,909,337	492,445	1,505	327	R 254,840	R 169	51.75
351-400	6,903,590	575,299	1,523	378	R 297,717	R 196	51.75
401-450	4,582,902	381,909	890	429	R 197,638	R 222	51.75
451-500	4,197,951	349,829	728	480	R 181,037	R 249	51.75
501-550	3,700,831	308,403	583	529	R 159,598	R 274	51.75
551-600	3,351,804	279,317	481	581	R 144,547	R 301	51.75
601-650	2,396,944	199,745	317	631	R 103,368	R 327	51.75
651-700	2,177,752	181,479	266	682	R 93,916	R 353	51.75
701-750	1,757,297	146,441	200	734	R 75,783	R 380	51.75
751-800	1,697,980	141,498	180	785	R 73,225	R 406	51.75
801-850	1,348,315	112,360	135	835	R 58,146	R 432	51.75
851-900	990,576	82,548	93	884	R 42,719	R 457	51.75
901-950	773,579	64,465	69	935	R 33,361	R 484	51.75
951-1000	912,963	76,080	77	983	R 39,372	R 509	51.75
1001-1050	561,961	46,830	45	1,037	R 24,235	R 537	51.75
1051-1100	498,441	41,537	38	1,091	R 21,495	R 564	51.75
1101-1150	345,441	28,787	25	1,136	R 14,897	R 588	51.75
1151-1200	444,608	37,051	31	1,182	R 19,174	R 612	51.75
1201-1250	249,019	20,752	17	1,233	R 10,739	R 638	51.75
1251-1300	223,530	18,628	14	1,292	R 9,640	R 669	51.75
1301-1350	227,548	18,962	14	1,346	R 9,813	R 697	51.75
1351-1400	174,300	14,525	11	1,383	R 7,517	R 716	51.75
1401-1450	167,945	13,995	10	1,435	R 7,243	R 743	51.75
1451-1500	123,716	10,310	7	1,491	R 5,335	R 771	51.75
>1500	4,823,847	401,987	139	2,902	R 208,028	R 1,502	51.75
Total (summary)	79,392,100	6,616,008	40,824	162	R 3,423,784	R 84	51.75

Homelight 2 20A (FBE)

Homelight 2 20A (FBE)	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-50	67,614	5,634	4,454	1	R 2,916	R 0	0.00
51-100	844,919	70,410	851	83	R 36,437	R 17	20.48
101-150	3,845,798	320,483	2,470	130	R 165,850	R 41	31.81
151-200	3,582,726	298,560	1,685	177	R 154,505	R 66	37.14
201-250	3,173,013	264,418	1,169	226	R 136,836	R 91	40.31
251-300	2,932,228	244,352	886	276	R 126,452	R 117	42.37
301-350	1,910,274	159,190	492	324	R 82,381	R 142	43.76
351-400	1,861,483	155,124	413	376	R 80,276	R 169	44.87
401-450	1,117,070	93,089	219	425	R 48,174	R 194	45.66
451-500	1,043,785	86,982	182	477	R 45,013	R 221	46.32
501-550	563,069	46,922	89	527	R 24,282	R 247	46.84
551-600	598,123	49,844	86	578	R 25,794	R 273	47.28
601-650	414,414	34,535	55	627	R 17,872	R 299	47.62
651-700	295,626	24,635	36	680	R 12,749	R 326	47.94
701-750	209,305	17,442	24	727	R 9,026	R 350	48.19
751-800	203,493	16,958	22	780	R 8,776	R 378	48.43
801-850	183,082	15,257	18	828	R 7,895	R 403	48.63
851-900	120,235	10,020	11	878	R 5,185	R 428	48.80
901-950	122,190	10,183	11	933	R 5,269	R 457	48.98
951-1000	87,941	7,328	8	977	R 3,792	R 480	49.10
1001-1050	62,591	5,216	5	1,026	R 2,699	R 505	49.23
1051-1100	88,127	7,344	7	1,075	R 3,800	R 530	49.34
1101-1150	72,522	6,044	5	1,133	R 3,128	R 561	49.47
1151-1200	32,963	2,747	2	1,177	R 1,422	R 583	49.55
1201-1250	25,706	2,142	2	1,224	R 1,109	R 608	49.64
1251-1300	54,058	4,505	4	1,287	R 2,331	R 640	49.74
1301-1350	15,924	1,327	1	1,327	R 687	R 661	49.80
1351-1400	21,984	1,832	1	1,374	R 948	R 685	49.87
1401-1450	47,320	3,943	3	1,434	R 2,041	R 716	49.95
1451-1500	8,807	734	1	1,468	R 380	R 734	49.99
>1500	239,128	19,927	10	1,993	R 10,312	R 1,005	50.45
Total (summary)	23,845,517	1,987,126	13,222	150	R 1,028,338	R 52	34.53

Homelight 2 60A (non FBE)

Homelight 2 60A (non FBE)	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-50	2,172,607	181,051	23,356	8	R 107,019	R 5	59.11
51-100	6,799,467	566,622	11,739	48	R 334,930	R 29	59.11
101-150	10,393,802	866,150	12,480	69	R 511,981	R 41	59.11
151-200	15,381,981	1,281,832	11,841	108	R 757,691	R 64	59.11
201-250	16,846,945	1,403,912	10,799	130	R 829,852	R 77	59.11
251-300	22,088,369	1,840,697	9,669	190	R 1,088,036	R 113	59.11
301-350	25,736,575	2,144,715	9,635	223	R 1,267,741	R 132	59.11
351-400	23,544,979	1,962,082	7,889	249	R 1,159,786	R 147	59.11
401-450	27,526,830	2,293,903	6,706	342	R 1,355,926	R 202	59.11
451-500	26,161,162	2,180,097	6,040	361	R 1,288,655	R 213	59.11
501-550	30,457,513	2,538,126	5,553	457	R 1,500,286	R 270	59.11
551-600	28,856,200	2,404,683	5,340	450	R 1,421,408	R 266	59.11
601-650	27,537,235	2,294,770	4,325	531	R 1,356,438	R 314	59.11
651-700	29,441,051	2,453,421	3,932	624	R 1,450,217	R 369	59.11
701-750	26,895,078	2,241,256	3,703	605	R 1,324,807	R 358	59.11
751-800	26,582,758	2,215,230	3,072	721	R 1,309,422	R 426	59.11
801-850	25,241,391	2,103,449	2,770	759	R 1,243,349	R 449	59.11
851-900	25,278,606	2,106,551	2,549	826	R 1,245,182	R 488	59.11
901-950	22,346,099	1,862,175	2,360	789	R 1,100,732	R 466	59.11
951-1000	20,123,310	1,676,943	1,824	919	R 991,241	R 543	59.11
1001-1050	20,421,505	1,701,792	1,715	992	R 1,005,929	R 587	59.11
1051-1100	17,597,094	1,466,425	1,557	942	R 866,804	R 557	59.11
1101-1150	16,576,520	1,381,377	1,262	1,095	R 816,532	R 647	59.11
1151-1200	15,310,872	1,275,906	1,133	1,126	R 754,188	R 666	59.11
1201-1250	13,166,608	1,097,217	980	1,120	R 648,565	R 662	59.11
1251-1300	11,433,701	952,808	760	1,255	R 563,205	R 742	59.11
1301-1350	10,883,754	906,980	712	1,274	R 536,116	R 753	59.11
1351-1400	9,734,206	811,184	607	1,337	R 479,491	R 790	59.11
1401-1450	9,281,861	773,488	599	1,292	R 457,209	R 763	59.11
1451-1500	8,404,170	700,347	484	1,448	R 413,975	R 856	59.11
>1500	98,693,468	8,224,456	3,616	2,274	R 4,861,476	R 1,344	59.11
Total (summary)	670,915,714	55,909,643	159,006	352	R 33,048,190	R 208	59.11

Homelight 2 60A (FBE)

Homepower 1	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-100	1,210,005	99,442	3,364	30	R 606,129	R 180	609.53
101-200	6,025,751	495,283	3,186	155	R 784,114	R 246	158.32
201-300	15,437,387	1,268,824	5,029	252	R 1,492,759	R 297	117.65
301-400	21,146,483	1,738,067	4,976	349	R 1,729,773	R 348	99.52
401-500	23,685,378	1,946,754	4,327	450	R 1,732,172	R 400	88.98
501-600	24,078,327	1,979,047	3,606	549	R 1,630,335	R 452	82.38
601-700	22,940,094	1,885,518	2,910	648	R 1,466,723	R 504	77.79
701-800	21,529,041	1,769,508	2,362	749	R 1,315,713	R 557	74.35
801-900	19,872,143	1,633,319	1,924	849	R 1,172,252	R 609	71.77
901-1000	19,158,026	1,574,642	1,659	949	R 1,097,877	R 662	69.72
1001-1100	19,621,380	1,612,721	1,537	1,049	R 1,097,726	R 714	68.07
1101-1200	19,574,237	1,608,859	1,399	1,150	R 1,072,975	R 767	66.69
1201-1300	18,683,235	1,535,626	1,229	1,249	R 1,006,624	R 819	65.55
1301-1400	18,776,893	1,543,315	1,145	1,348	R 996,816	R 871	64.59
1401-1500	19,872,835	1,633,380	1,128	1,448	R 1,041,183	R 923	63.74
1501-1600	18,484,284	1,519,253	980	1,550	R 957,039	R 977	62.99
1601-1700	19,066,395	1,567,112	950	1,650	R 977,162	R 1,029	62.35
1701-1800	17,906,290	1,471,752	841	1,750	R 909,269	R 1,081	61.78
1801-1900	16,918,279	1,390,544	752	1,849	R 852,082	R 1,133	61.28
1901-2000	16,359,879	1,344,648	689	1,952	R 817,670	R 1,187	60.81
2001-2100	15,479,316	1,272,283	621	2,049	R 768,573	R 1,238	60.41
2101-2200	15,814,024	1,299,776	605	2,148	R 780,336	R 1,290	60.04
2201-2300	14,642,945	1,203,529	535	2,250	R 718,403	R 1,343	59.69
2301-2400	14,586,842	1,198,919	510	2,351	R 711,871	R 1,396	59.38
2401-2500	12,388,214	1,018,207	416	2,448	R 601,750	R 1,447	59.10
2501-2600	13,268,262	1,090,539	428	2,548	R 641,607	R 1,499	58.83
2601-2700	12,306,974	1,011,534	382	2,648	R 592,656	R 1,551	58.59
2701-2800	11,029,749	906,563	330	2,747	R 529,118	R 1,603	58.37
2801-2900	10,820,580	889,361	312	2,851	R 517,145	R 1,658	58.15
2901-3000	9,760,079	802,196	272	2,949	R 464,908	R 1,709	57.95
>3000	197,947,697	16,269,648	3,450	4,716	R 9,088,630	R 2,634	55.86
Total (summary)	688,391,024	56,580,169	51,854	1,106	R 38,171,388	R 736	66.54

Homepower 1

Homepower 1	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-100	1,210,005	99,442	3,364	30	R 606,129	R 180	609.53
101-200	6,025,751	495,283	3,186	155	R 784,114	R 246	158.32
201-300	15,437,387	1,268,824	5,029	252	R 1,492,759	R 297	117.65
301-400	21,146,483	1,738,067	4,976	349	R 1,729,773	R 348	99.52
401-500	23,685,378	1,946,754	4,327	450	R 1,732,172	R 400	88.98
501-600	24,078,327	1,979,047	3,606	549	R 1,630,335	R 452	82.38
601-700	22,940,094	1,885,518	2,910	648	R 1,466,723	R 504	77.79
701-800	21,529,041	1,769,508	2,362	749	R 1,315,713	R 557	74.35
801-900	19,872,143	1,633,319	1,924	849	R 1,172,252	R 609	71.77
901-1000	19,158,026	1,574,642	1,659	949	R 1,097,877	R 662	69.72
1001-1100	19,621,380	1,612,721	1,537	1,049	R 1,097,726	R 714	68.07
1101-1200	19,574,237	1,608,859	1,399	1,150	R 1,072,975	R 767	66.69
1201-1300	18,683,235	1,535,626	1,229	1,249	R 1,006,624	R 819	65.55
1301-1400	18,776,893	1,543,315	1,145	1,348	R 996,816	R 871	64.59
1401-1500	19,872,835	1,633,380	1,128	1,448	R 1,041,183	R 923	63.74
1501-1600	18,484,284	1,519,253	980	1,550	R 957,039	R 977	62.99
1601-1700	19,066,395	1,567,112	950	1,650	R 977,162	R 1,029	62.35
1701-1800	17,906,290	1,471,752	841	1,750	R 909,269	R 1,081	61.78
1801-1900	16,918,279	1,390,544	752	1,849	R 852,082	R 1,133	61.28
1901-2000	16,359,879	1,344,648	689	1,952	R 817,670	R 1,187	60.81
2001-2100	15,479,316	1,272,283	621	2,049	R 768,573	R 1,238	60.41
2101-2200	15,814,024	1,299,776	605	2,148	R 780,336	R 1,290	60.04
2201-2300	14,642,945	1,203,529	535	2,250	R 718,403	R 1,343	59.69
2301-2400	14,586,842	1,198,919	510	2,351	R 711,871	R 1,396	59.38
2401-2500	12,388,214	1,018,207	416	2,448	R 601,750	R 1,447	59.10
2501-2600	13,268,262	1,090,539	428	2,548	R 641,607	R 1,499	58.83
2601-2700	12,306,974	1,011,534	382	2,648	R 592,656	R 1,551	58.59
2701-2800	11,029,749	906,563	330	2,747	R 529,118	R 1,603	58.37
2801-2900	10,820,580	889,361	312	2,851	R 517,145	R 1,658	58.15
2901-3000	9,760,079	802,196	272	2,949	R 464,908	R 1,709	57.95
>3000	197,947,697	16,269,648	3,450	4,716	R 9,088,630	R 2,634	55.86
Total (summary)	688,391,024	56,580,169	51,854	1,106	R 38,171,388	R 736	66.54

Homepower 2

Homepower 2	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-2000	39,342,748	3,233,642	3,217	1,005	R 2,563,013	R 797	79.26
2001-2100	3,475,287	285,644	139	2,055	R 187,163	R 1,357	66.02
2101-2200	3,535,795	290,613	135	2,153	R 188,685	R 1,521	70.65
2201-2300	3,466,171	284,886	127	2,243	R 183,523	R 1,596	71.15
2301-2400	2,946,722	242,200	103	2,351	R 154,681	R 2,940	125.04
2401-2500	3,610,276	296,733	121	2,452	R 188,105	R 3,205	130.69
2501-2600	3,135,756	257,733	101	2,552	R 162,275	R 1,592	62.40
2601-2700	3,055,641	251,149	95	2,644	R 157,205	R 1,649	62.37
2701-2800	3,305,609	271,700	99	2,744	R 169,049	R 1,634	59.54
2801-2900	2,949,813	242,446	85	2,852	R 149,944	R 1,691	59.27
2901-3000	3,440,726	282,801	96	2,946	R 174,052	R 1,740	59.05
3001-3100	3,081,541	253,276	83	3,052	R 155,076	R 1,795	58.82
3101-3200	2,531,397	208,060	66	3,152	R 126,801	R 1,848	58.61
3201-3300	2,846,733	233,980	72	3,250	R 141,997	R 1,899	58.43
3301-3400	2,649,679	217,782	65	3,350	R 131,622	R 1,951	58.24
3401-3500	2,181,662	179,312	52	3,448	R 107,961	R 2,003	58.08
3501-3600	2,457,769	202,008	57	3,544	R 121,199	R 2,053	57.92
3601-3700	2,085,039	171,372	47	3,646	R 102,452	R 2,106	57.77
3701-3800	2,240,204	184,125	49	3,758	R 109,671	R 2,165	57.61
3801-3900	2,387,893	196,263	51	3,848	R 116,568	R 2,212	57.48
3901-4000	2,015,907	165,692	42	3,945	R 98,126	R 2,263	57.36
4001-4100	1,771,258	145,585	36	4,044	R 85,974	R 2,315	57.24
4101-4200	755,820	62,121	15	4,141	R 36,587	R 2,366	57.12
4201-4300	1,552,523	127,607	30	4,254	R 74,937	R 2,424	57.00
4301-4400	1,375,798	113,082	26	4,349	R 66,249	R 2,475	56.89
4401-4500	1,244,082	102,250	23	4,446	R 59,765	R 2,525	56.80
4501-4600	1,052,238	86,484	19	4,552	R 50,427	R 2,581	56.69
4601-4700	1,751,567	143,964	31	4,644	R 83,773	R 2,629	56.61
4701-4800	635,967	52,270	11	4,752	R 30,347	R 2,685	56.51
4801-4900	1,179,305	96,930	20	4,847	R 56,168	R 2,735	56.43
4901-5000	1,322,185	108,673	22	4,940	R 62,859	R 2,784	56.35
>5000	29,910,487	2,458,392	329	7,472	R 1,376,389	R 4,110	55.00
Total (summary)	109,383,111	8,990,383	5,135	1,775	R 6,096,254	R 1,114	62.74

Homepower 4

Homepower 4	1. Total consumption per annum	2. Average consumption per month	3. Average no of customers	4. Average consumption /cust/month	5. Total revenue (R)	6. Average payable per month (R)	7. Average price c/kWh
0-100	2,982,394	245,125	7,094	35	R 979,652	R 138	399.65
101-200	11,460,035	941,902	6,157	153	R 1,232,114	R 200	130.81
201-300	24,996,477	2,054,515	8,150	252	R 2,053,950	R 252	99.97
301-400	43,259,988	3,555,625	10,108	352	R 3,075,041	R 304	86.48
401-500	60,655,579	4,985,456	11,058	451	R 3,937,843	R 356	78.99
501-600	72,417,869	5,952,162	10,828	550	R 4,416,507	R 408	74.20
601-700	76,242,869	6,266,600	9,657	649	R 4,440,658	R 460	70.86
701-800	74,198,940	6,098,581	8,144	749	R 4,171,107	R 512	68.39
801-900	67,721,395	5,566,140	6,560	848	R 3,702,188	R 564	66.51
901-1000	59,386,959	4,881,144	5,147	948	R 3,173,895	R 617	65.02
1001-1100	52,899,055	4,347,862	4,148	1,048	R 2,774,735	R 669	63.82
1101-1200	45,779,241	3,762,689	3,276	1,149	R 2,363,640	R 722	62.82
1201-1300	42,036,262	3,455,029	2,767	1,249	R 2,141,439	R 774	61.98
1301-1400	34,499,840	2,835,632	2,103	1,348	R 1,737,380	R 826	61.27
1401-1500	30,466,371	2,504,071	1,727	1,450	R 1,518,622	R 879	60.65
1501-1600	27,045,426	2,222,912	1,435	1,549	R 1,336,339	R 931	60.12
1601-1700	22,762,383	1,870,880	1,135	1,648	R 1,115,980	R 983	59.65
1701-1800	18,630,389	1,531,268	875	1,750	R 906,925	R 1,036	59.23
1801-1900	17,997,615	1,479,262	800	1,849	R 870,690	R 1,088	58.86
1901-2000	14,547,047	1,195,648	614	1,947	R 699,841	R 1,140	58.53
2001-2100	13,383,124	1,099,982	537	2,048	R 640,501	R 1,193	58.23
2101-2200	11,949,915	982,185	457	2,149	R 569,210	R 1,246	57.95
2201-2300	10,043,691	825,508	367	2,249	R 476,359	R 1,298	57.70
2301-2400	8,065,106	662,886	282	2,351	R 380,993	R 1,351	57.47
2401-2500	7,514,701	617,647	252	2,451	R 353,702	R 1,404	57.27
2501-2600	6,634,313	545,287	214	2,548	R 311,247	R 1,454	57.08
2601-2700	5,996,968	492,902	186	2,650	R 280,453	R 1,508	56.90
2701-2800	4,812,229	395,525	144	2,747	R 224,416	R 1,558	56.74
2801-2900	4,234,979	348,081	122	2,853	R 196,930	R 1,614	56.58
2901-3000	4,373,785	359,498	122	2,947	R 202,909	R 1,663	56.44
>3000	63,220,187	5,196,194	1,093	4,754	R 2,852,407	R 2,610	54.89
Total (summary)	940,215,132	77,278,198	105,559	742	R 53,137,672	R 503	67.82

Summary of Homelight Total						
Tariff	Annual consumption	Average consumption/month	No of customers	Average kWh /month	Average payable per month (R)	Average price (c/kWh)
Homelight 1 20A	3,063,858,736	255,321,561	2,458,083	104	R 76.53	47.81
Homelight 1 60A	2,514,742,893	209,561,908	1,274,393	164	R 124.83	57.64
Homelight 2 20A	103,237,616	8,603,135	368,056	23	R 99.76	43.14
Homelight 2 60A	818,146,731	68,178,894	213,301	320	R 211.97	52.57
Total	**6,499,985,977**		**4,313,833**	**126**		
Homelight 1 20A	1,956,843,647		1,735,389	94	R 55.87	59.46
Homelight 1 20A FBE	1,107,015,089		722,694	128	R 46.17	36.17
Total Homelight 1 20A	**3,063,858,736**		**2,458,083**	**104**	**R 76.53**	
Homelight 1 60A	1,807,770,255		947,161	159	R 106.45	66.93
Homelight 1 60A FBE	706,972,639		327,232	180	R 87.03	48.34
Total Homelight 1 60A	**2,514,742,893**		**1,274,393**	**164**	**R 124.83**	
Homelight 2 20A	79,392,100		40,824	162	R 83.87	51.75
Homelight 2 20A FBE	23,845,517		13,222	150	R 51.90	34.53
Total Homelight 2 20A	**103,237,616**		**54,046**	**159**	**R 99.76**	
Homelight 2 60A	670,915,714		159,006	352	R 207.84	59.11
Homelight 2 60A FBE	147,231,017		54,295	226	R 104.02	46.03
Total Homelight 2 60A	**818,146,731**		**213,301**	**320**	**R 211.97**	
Tariff	Annual consumption		No of customers	Average kWh /month		
Homelight 20A	**3,167,096,352**		**2,512,129**	**105**	**R 69.87**	**R 55.61**
Homelight 60A	**3,332,889,624**		**1,487,694**	**187**	**R 157.15**	**R 63.02**
Total	**6,499,985,977**		**3,999,823**	**135**		
Homelight 20A FBE	**1,130,860,605**		**735,916**	**128**	**R 49.03**	**R 35.35**
Homelight 60A FBE	**854,203,656**		**381,527**	**187**	**R 95.53**	**R 47.19**
Total	**1,985,064,261**		**1,117,443**	**148**		
Homelight 20A excluding zero kW	**1,130,860,605**		**500,830**	**188**		
Homelight 60A excluding zero kW	**854,203,656**		**277,798**	**256**		
Total	**1,985,064,261**		**778,629**	**212**		
Summary of Homepower consumption data						
	Annual consumption		No of customers	Average kWh /month		
Homepower 1	688,391,024		51,854	1106	R 736.13	66.54
Homepower 2	109,383,111		5,135	1775	R 1,113.70	62.74
Homepower 3	30,572,419		892	2856	R 1,945.09	68.10
Homepower 4	940,215,132		105,559	742	R 503.39	67.82
Total	**1,768,561,686**		**163,440**	**902**		
Total residential	**8,268,547,663**		**4,163,263**	**166**	**R 104.65**	**63.27**

Summary of Homelight conventional

Tariff	Annual consumption	No of customers	Average kWh /month	Average payable per month (R)	Average price (c/kWh)
Homelight 1 20A	-	-		-	-
Homelight 1 60A	24,247,315	4,161	486	R 330.32	66.93
Homelight 2 20A	50,437,194	12,580	334	R 175.93	51.75
Homelight 2 60A	553,442,265	78,764	586	R 360.30	59.11
Total	**628,126,774**	**95,505**	**548**		
Homelight 1 20A	-	-	-	-	-
Homelight 1 20A FBE	-	-	-	-	-
Total Homelight 1 20A	**-**	**-**	-	**-**	-
Homelight 1 60A	23,433,330	4,011	487	R 325.85	66.93
Homelight 1 60A FBE	813,985	150	452	R 269.20	59.53
Total Homelight 1 60A	**24,247,315**	**4,161**	**486**		
Homelight 2 20A	49,477,971	12,351	334	R 172.76	51.75
Homelight 2 20A FBE	959,223	229	349	R 154.76	44.34
Total Homelight 2 20A	**50,437,194**	**12,580**	**334**		
Homelight 2 60A	553,442,265	78,764	586	R 346.12	59.11
Homelight 2 60A FBE	53,194,189	9,147	485	R 256.91	53.01
Total Homelight 2 60A	**606,636,454**	**87,911**	**575**		
	681,320,963				

Tariff	Annual consumption	No of customers	Average kWh /month		
Homelight 20A	**50,437,194**	**12,580**	**334**	**R 172.76**	**51.75**
Homelight 60A	**630,883,769**	**92,072**	**571**	**R 335.99**	**63.02**
Total	**681,320,963**	**104,652**	**543**		
Homelight 20A FBE	**959,223**	**229**	**349**	**R 154.76**	**44.34**
Homelight 60A FBE	**54,008,174**	**9,297**	**484**	**R 263.05**	**56.27**
Total	**54,967,397**	**9,526**	**481**		

Summary of Homepower consumption data

	Annual consumption	No of customers	Average kWh /month		
Homepower 1	688,391,024	51,854	1106	R 736	66.54
Homepower 2	109,383,111	5,135	1,775	R 1,368	64.38
Homepower 3	30,572,419	892	2,856	R 2,989	61.28
Homepower 4	940,215,132	105,559	742	R 503	67.82
Total	**1,768,561,686**	**163,440**	**902**		
Total conventional	**2,449,882,649**	**268,092**	**762**		

Summary of Homelight prepaid

Tariff	Annual consumption	No of customers	Average kWh /month	Average payabble per month (R)	Average price (c/kWh)
Homelight 1 20A	3,063,858,736	2,458,083	104	R 37.09	59.46
Homelight 1 60A	2,490,495,578	1,270,232	163	R 124.16	66.93
Homelight 2 20A	52,800,422	41,466	106	R 76.66	51.75
Homelight 2 60A	211,510,277	89,390	197	R 151.51	59.11
Total	**5,818,665,014**	**3,859,171**	**126**		
Homelight 1 20A	1,956,843,647	1,735,389	94	R 55.87	59.46
Homelight 1 20A FBE	1,107,015,089	722,694	128	R 46.17	36.17
Total Homelight 1 20A	**3,063,858,736**	**2,458,083**	**104**		
Homelight 1 60A	1,784,336,925	943,150	158	R 105.52	66.93
Homelight 1 60A FBE	706,158,654	327,082	180	R 86.95	48.33
Total Homelight 1 60A	**2,490,495,578**	**1,270,232**	**163**		
Homelight 2 20A	29,914,129	28,473	88	R 45.31	51.75
Homelight 2 20A FBE	22,886,294	12,993	147	R 50.09	34.12
Total Homelight 2 20A	**52,800,422**	**41,466**	**106**		
Homelight 2 60A	117,473,449	44,242	221	R 130.79	59.11
Homelight 2 60A FBE	94,036,828	45,148	174	R 73.04	42.08
Total Homelight 2 60A	**211,510,277**	**89,390**	**197**		

Tariff	Annual consumption	No of customers	Average kWh /month		
Homelight 20A	**3,116,659,158**	**2,499,549**	**104**	**R 50.59**	**55.61**
Homelight 60A	**2,702,005,855**	**1,359,622**	**166**	**R 118.16**	**63.02**
Total	**5,818,665,014**	**3,859,171**	**126**		
Homelight 20A FBE	**1,129,901,382**	**735,687**	**128**	**R 48.13**	**35.15**
Homelight 60A FBE	**800,195,482**	**372,230**	**179**	**R 80.00**	**45.21**
Total	**1,930,096,864**	**1,107,917**	**145**		
Homelight 20A excluding zero kWh	**1,129,901,382**	**729,562**	**129**		
Homelight 60A excluding zero kWh	**800,195,482**	**365,684**	**182**		
Total	**1,930,096,864**	**1,095,246**	**147**		
Total prepaid	**5,818,665,014**	**3,859,171**	**126**		

Homelight *[non local authorities]*

	Energy Charge [c/kWh]		Environmental levy [c/kWh]		Total	
		VAT incl		*VAT incl*		*VAT incl*
Homelight 1						
10A	**57.49**	*65.54*	**1.97**	*2.25*	**59.46**	*67.78*
20A	**57.49**	*65.54*	**1.97**	*2.25*	**59.46**	*67.78*
60A	**64.96**	*74.05*	**1.97**	*2.25*	**66.93**	*76.30*
Homelight 2						
20A	**49.78**	*56.75*	**1.97**	*2.25*	**51.75**	*59.00*
60A	**57.14**	*65.14*	**1.97**	*2.25*	**59.11**	*67.39*

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