



HUNGRY FOR ELECTRICITY

TRACY LEDGER &
MAHLATSE RAMPEDI



The Public Affairs Research Institute

(PARI) is a South African organisation that undertakes research into the constraints to effective governance,

underlining the importance of institutions and institution-building. Our overarching goal is to contribute to a state that operates more effectively for those who need the state the most. We work with change agents across the public service and civil society to improve the capability of the state.



PARI's Energy and Society

Programme is focused on researching key aspects of the just transition that are currently under-represented in the national debate.

This includes issues such as the linkages between energy availability and cost, and household poverty. Our goal is to undertake detailed empirical research that will make a contribution to national energy policy and to build a civil society coalition around this agenda.



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MAHLATSE RAMPEDI

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Writers: Tracy Ledger, Mahlatse Rampedi

Copy/proof editor: Vishanthi Arumugam

Design and layout: Quba Design & Motion

Graphics: Francois Smit

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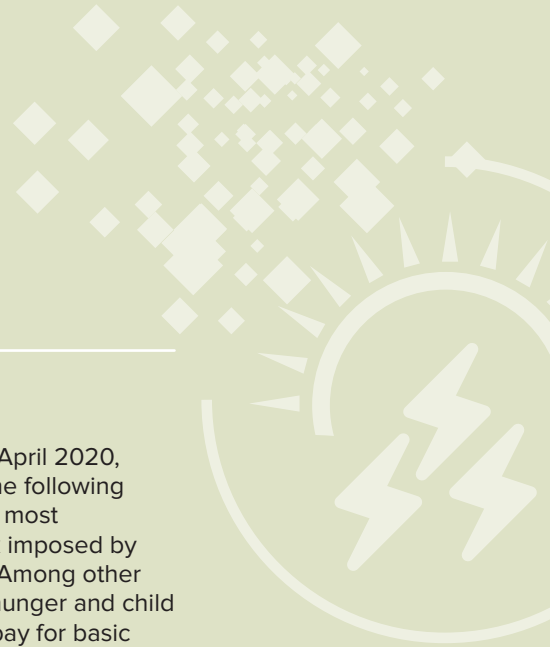
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Introduction

PARI's Energy and Society Programme was established in April 2020, as the first Covid-19 lockdown in South Africa began. In the following months, we saw clearly how precarious the livelihoods of most households really are: unable to cope with the economic shock imposed by the lockdown, poverty and inequality in the country increased. Among other ways, this poverty manifested in rapidly increasing household hunger and child malnutrition and a rise in the number of households unable to pay for basic essential services, most notably electricity.

Our research work is centred on the goal of progressing a just energy transition in South Africa. Specifically, we focus on the linkages between a just transition, poverty and equity. The relationship between poverty and the inability to access clean and safe energy (specifically electricity) is well documented: Sustainable Development Goal (SDG) 7 – universal access to clean and safe energy by 2030 – is acknowledged as critical to attaining many other SDGs such as poverty eradication and ending hunger. However, SDG 7 is generally poorly integrated into conceptualisations of a just energy transition. This is particularly so in South Africa: the country's most recent just transition framework document mentions the term energy poverty only once and presents no strategies to address it as an integral part of the transition.

This book aims to fill the gap; to document the serious implications for socioeconomic development of ignoring energy poverty in South Africa, and strategies for how to change this.





Those most affected by energy poverty are inevitably the poorest: their poverty – and the role played by lack of access to electricity in that poverty – is largely invisible. Those who most desperately need electricity to improve their lives have no voice in energy policy making. An important aim of this book is to end that silence. Mahlatse Rampedi has spent many months with communities across South Africa recording the testimonies of those who struggle daily for one of the basic necessities of life; whose biggest opponent in that struggle is almost always the state.

Those testimonies form a significant part of this book. Apart from translation into English where necessary, we have not edited people's words. Everyone who is quoted in the book gave us their permission to do so. We are immensely grateful for their contribution and their insights into South Africa's electricity provision system. In many instances, they have a much better understanding of how this system works than those responsible for its operation and oversight.

The overarching theme of *Hungry for Electricity* is that universal access to clean and safe electricity is probably the single most important factor that will contribute to poverty reduction in South Africa. Achieving this goal will not be quick or easy, but it must be done. This book is the foundation of a long-term research and advocacy campaign towards universal access. We hope that you will join our journey at www.pari.org.za/energy-and-society





CHAPTER 1

Electricity Can End Poverty

Ending energy poverty is the necessary
prerequisite to ending poverty itself.

GLOBAL COMMISSION TO END ENERGY POVERTY

“

By 2030, ensure universal access to affordable, reliable and modern energy services.

SUSTAINABLE DEVELOPMENT GOAL 7, TARGET 7.1.

Access to modern forms of energy (notably electricity) is an essential prerequisite for overcoming poverty, promoting economic growth, expanding employment opportunities, supporting the provision of social services, and, in general, promoting human development.

GLOBAL ENERGY ASSESSMENT (2012)

”

Energy and development are inextricably linked

Access to clean and safe energy is the great enabler of socioeconomic development. It facilitates higher standards of living and higher levels of economic activity.

The World Bank is clear that ‘access to energy is at the heart of development’, and that lack of access poses ‘a key barrier to economic development’.ⁱ Similarly, research in sub-Saharan Africa shows a significant positive relationship between increased electricity consumption and increased economic growth.ⁱⁱ Studies focused on South Africa have found that constrained access to electricity is strongly associated with *declining* economic activity.ⁱⁱⁱ

Universal Access to Energy – SDG 7

There are 17 Sustainable Development Goals (SDGs) in the United Nations (UN) 2030 Agenda for Sustainable Development that was adopted by all UN member states in 2015.^{iv} The 7th SDG is to ‘ensure access to affordable, reliable, sustainable and modern energy for all’. Within SDG 7 there is a clear focus on access to electricity.

Besides comprising a standalone global goal, SDG 7 is closely linked to attaining many of the other SDGs – eradicating poverty, improving food security, addressing climate change and improving health outcomes. The general consensus is thus that ‘increased electricity consumption is the *essential* condition for improving people’s quality of life’. In fact, **it is almost impossible to imagine eradicating poverty without achieving universal access to electricity.**

Economic growth is an essential prerequisite for overcoming poverty. No country has achieved sustained economic growth without improving access to cleaner and modern forms of energy and the services that they provide ... Policies to ‘share’ the benefits of growth are needed to address inequality and combat poverty. Energy services to support economic growth and energy policies to combat inequality in human welfare are thus both critically important.

GLOBAL ENERGY ASSESSMENT
(2012)

How does electricity access reduce poverty?

Electricity is necessary for most economic activities, including those crucial for employment creation and higher household incomes in rural areas. When households and small enterprises have access, they engage in a wider range of economic activities, particularly higher value-added activities. This means increased employment and household disposable income and expenditure, which reduces both poverty and inequality:

- **Small-scale agriculture** provides better financial returns and lower risks when electricity is available for crop irrigation (pumping water), automation (milking cows), temperature control (in raising poultry) and post-harvest storage (such as refrigeration, which reduces losses). Access to electricity is positively correlated with agricultural productivity and higher farm returns.^v Conversely, when small-scale farmers are unable to access sufficient electricity, they are invariably less productive, generating lower yields and incomes, and they create fewer employment opportunities.
- **Expanded activities in agro-processing**, which adds value to basic agricultural products, can generate significant income and employment in rural areas. But taking advantage of most opportunities in the agro-processing value chain (such as food processing, manufacturing, packaging and post-harvest refrigeration) requires access to electricity.
- **Retailing basic food items and preparing readymade meals** are important economic activities for many low-income households, particularly for women. This ideally requires electricity for refrigeration and for cooking that is less dangerous and/or polluting than firewood, paraffin or coal.
- Research suggests that **households with electricity access are more likely to establish a small business enterprise**,^{vi} reflecting the strong linkages between access and increased economic activity.
- Access to electricity allows small businesses to trade for longer hours.

When there is no electricity I cannot do ... my business suffers because I cannot work when it's dark.

ZONDEKA, PROTEA SOUTH,
JOHANNESBURG

With consistent electricity I know that I can get things done. Life would be better. I work with electricity so I can get a lot of work. I work with wood so it is a bit slow when there is not electricity for cutting. I'm also in plumbing but I cannot drill on anything without electricity. I can also stay up to date as I look for jobs because I can communicate with everyone.

THABISO, PROTEA SOUTH, JOHANNESBURG

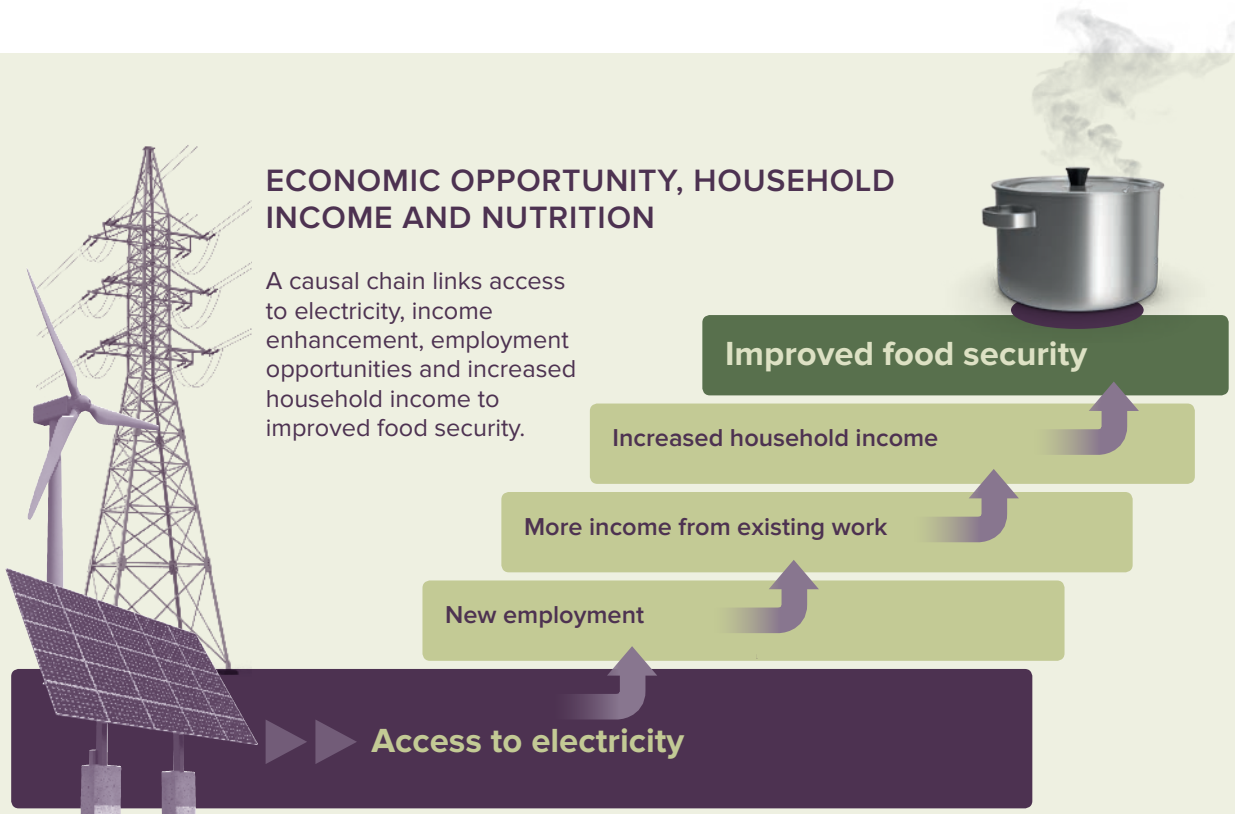


Higher incomes support better nutrition

Higher household income also means the ability to purchase more and better-quality food, which improves nutrition and reduces household hunger and food insecurity. There is thus a causal chain that runs from access to electricity to income enhancement and employment opportunities, to increased household income, to improved food security.

In addition, higher incomes mean households can improve their accommodation and generate surpluses to reinvest in existing or additional small-business enterprises.^{vii}

Conversely, **when low-income households are unable to access all the electricity required to support these business activities, they are excluded from many economic opportunities. This keeps poor households poor, entrenching inequality.**



Access to energy has multiple social benefits

In addition to higher income and employment, increased household access to clean and safe energy (electricity) leads to multiple positive development outcomes:

- Improved education outcomes since children can study at night and use technology to access additional learning materials.
- Reduced need for dirty, unsafe energy sources like coal or firewood. Indoor air pollution from cooking – the single biggest energy demand category for low-income households – is estimated to be responsible for 1.6 million deaths globally each year, the majority of which are children under five years.^{viii}
- Reduced risk of fire from unsafe energy sources. Each year, thousands of deaths and injuries in South Africa result from fires caused by paraffin or candles, largely in high-density informal urban settlements.
- Increased gender equity as women carry a disproportionate burden, particularly in rural areas, in respect of time spent sourcing fuel such as firewood. Access to modern energy allows more time for other commitments and income generation.^{ix}
- Increased access to clean energy contributes to achieving national and global decarbonisation goals.

Some 2.6 billion people remained without access to clean cooking in 2019, one third of the global population. Largely stagnant progress since 2010 leads to millions of deaths each year from breathing cooking smoke.

WORLD BANK



There are important linkages between access to electricity, and food security and household nutrition.

Cooking is the biggest energy user for low-income households in South Africa – almost all staple foods require cooking before they can be consumed. Importantly, foods with higher nutritional values, like whole grains, require longer cooking times. When households cannot afford the electricity for that cooking, they are likely to consume lower-nutrition pre-cooked foods, such as bread.

Refrigeration allows households to purchase and store raw food. Without refrigeration, dependency on readymade (generally more expensive) food increases, which effectively reduces the amount of food that can be purchased with a household's available income.

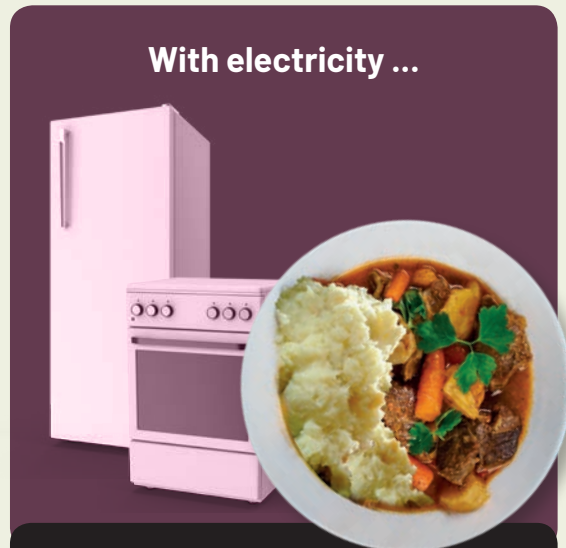
ELECTRICITY IMPROVES HOUSEHOLD NUTRITION

Without electricity ...




**READY-TO-EAT FOOD IS
LESS NUTRITIOUS**

With electricity ...



**HOME COOKED FOOD IS
MORE NUTRITIOUS**



You know, when you have electricity, food is not that expensive to buy, cook and preserve. Food is more expensive when you don't have electricity.

THABISO, PROTEA SOUTH,
JOHANNESBURG

If you don't have electricity it means you don't have food. You are in the dark in many ways.

TREVOR, PIMVILLE, JOHANNESBURG

Our food gets rotten all the time because of electricity. We always buy food that we can consume there and then and this wastes money, and we cannot really budget for this. When there is no electricity these fridges we have always break down because they have to be on for them to last ... When we have a working fridge one can cook, eat and refrigerate the rest of the food and this will last a few days. Food like meat and vegetables can last longer in this way.

ZONDEKA, PROTEA SOUTH, JOHANNESBURG

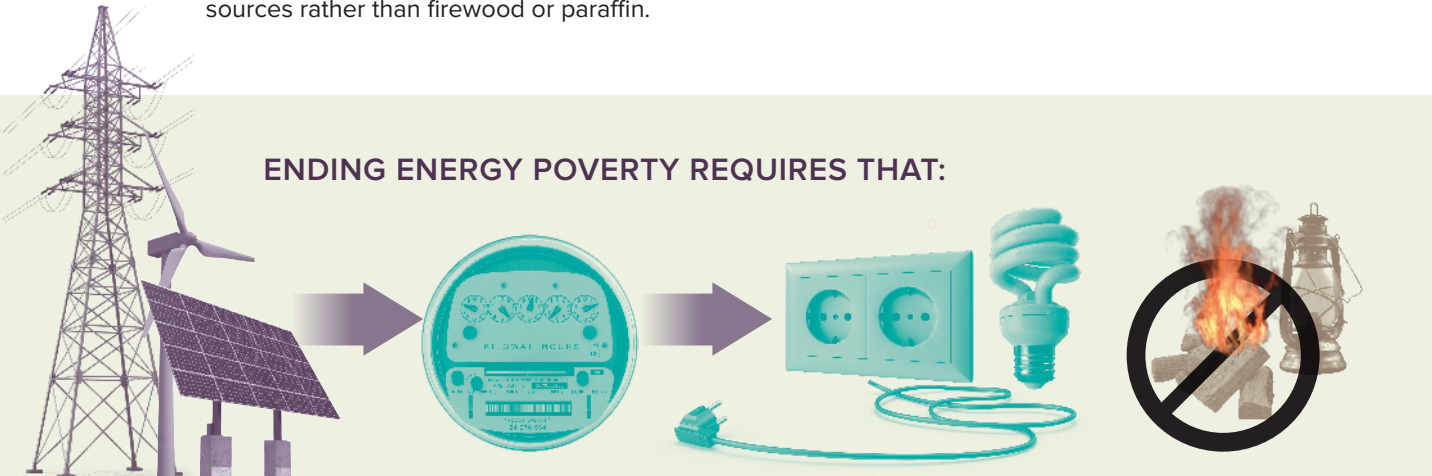
An End to Energy Poverty

The gap between the amount of energy that facilitates higher levels of development, and the amount that can be accessed, is called energy poverty. The World Economic Forum describes energy poverty as ‘a lack of access to sustainable modern energy sources and products’.

This definition is both quantitative and qualitative, indicating that in determining energy poverty, access to **clean and safe** energy must be considered in addition to the **amount** of energy that is accessed. That is, if a household or small enterprise has sufficient energy for its daily requirements, but these sources are polluting and unsafe, then that household still experiences energy poverty.

Reducing energy poverty thus requires that: 1) Energy users can access the amount of energy required to improve their standard of living and engage in more (productive) economic activities; and 2) The energy is clean and safe, such as electricity from clean sources rather than firewood or paraffin.

ENDING ENERGY POVERTY REQUIRES THAT:



1 Energy users can **access the amount of energy they need** to improve their standard of living and engage in more (productive) economic activities; and

2 The **energy is clean and safe**, such as electricity from clean sources rather than firewood or paraffin.

Multiple benefits to society when energy poverty is eradicated

Access to electricity is associated with positive socioeconomic outcomes that accrue to both the personal (individual and household) level *and* the broader society. Therefore, **we should regard universal access to electricity as beneficial to all of society and not just as aiding individual households.**

- Access to electricity supports broader national development goals. Conversely, lack of access will undermine almost all other household poverty reduction initiatives. For example, small farmers cannot leverage concessionary state funding (such as grants and loan guarantees) into meaningful productivity increases without access to electricity. Small business owners are less likely to apply new management skills if they cannot access electricity for their enterprises.
- Increasing livelihood generation and employment opportunities through universal access creates both upstream and downstream benefits across all economic sectors as the level of household income and expenditure increases. The national economic benefit thus extends far beyond individual beneficiary households.
- Reducing the number of households using polluting fuels such as coal reduces indoor air pollution and the national public health burden.
- Improvements in health and education outcomes increase the impact of existing expenditure in these areas.
- Higher employment and household income, together with access to clean and safe energy for cooking, are positively correlated with improved food security and children's nutritional status, resulting in significant national benefits.

In summary, universal access to clean and safe electricity contributes directly and significantly to attaining multiple national socioeconomic development goals that have broad-based benefits across the society and the entire economy.

A global consensus on achieving universal access to electricity

Investments in electricity access, if they are aligned with medium- and long-term climate and sustainability goals, will yield substantial socioeconomic and environmental benefits and should be prioritized in the (post-Covid) recovery strategies currently being developed by governments and international institutions.

GLOBAL COMMISSION TO END ENERGY POVERTY

Most developing countries have adopted the goal of **universal access to (clean and safe) energy¹** as a key development objective.^x The *universal* access goal reflects that electricity is not just required by industry and big business to stimulate growth and development. There is also overwhelming evidence that access to electricity by all households and small and micro enterprises (in addition to industry and commerce) is directly and positively correlated with higher standards of living, reduced poverty and greater equity.^{xi}

The overall national development objectives of the Government of Kenya as set out in the development blue print, Kenya Vision 2030 include accelerated economic growth; increasing productivity of all sectors; equitable distribution of national income; poverty alleviation through improved access to basic needs; enhanced agricultural production; industrialisation; accelerated employment creation and improved rural-urban balance.

The realisation of these objectives will be feasible if quality energy services are availed in a sustainable, competitive, cost effective and affordable manner to all sectors of the economy ranging from manufacturing, services, mining and agriculture, to households.

NATIONAL ENERGY POLICY 2018, REPUBLIC OF KENYA

The global consensus is that poverty and inequality can be significantly reduced through **universal access** to reliable, clean and safe electricity.

¹ This goal is commonly interpreted to mean access to electricity and its close substitutes (such as gas for cooking and heating), together with the long-term objective that the majority of this will be supplied using renewable resources.



What is universal access?

Universal access to electricity brings multiple and significant socioeconomic development benefits. But how should we define *universal access* so that it actually facilitates these benefits? What does universal access look like when it has been achieved? What are the main obstacles to achieving this goal?

These are critical questions: policy goals set to achieve universal access to electricity must be clear about what that entails, and how to measure progress towards its attainment.

Infrastructure is necessary for access but does not guarantee it

Access to electricity is defined as the ability of the end user to consume electricity for desired services.

TRACKING SDG 7: THE ENERGY PROGRESS REPORT

The term *access* is commonly used in its most literal sense; to mean that the household is now connected to the infrastructure that carries electricity – such as a formal connection to the electricity distribution grid or a home-based solar system. Given that electrification rates in many countries are so low, this focus on extending infrastructure is understandable. However, the infrastructure to provide electricity is, in fact, only one component of access; it offers the **possibility** of access, but not the **guarantee**.

Other factors must also be present before we can say that a household really has access to electricity:

- **Reliability** and **quality of supply** are particularly important for supporting economic activities and small business enterprises. An erratic electricity connection to support post-harvest storage of fruit and vegetables will lead to significant losses. The same can be said for almost all economic activities: the value of physical access is eroded if the supply is unreliable and of poor quality. Quality and reliability can be affected by problems in the generation, transmission and/or distribution of electricity.

In the latter case, poor maintenance of infrastructure and/or a failure to invest in the scale of infrastructure necessary to deliver to end-user requirements, are usually the main contributing factors.

- **Affordability** is essential for effective access (rather than theoretical access). Connection to the grid – the necessary first step in achieving universal access – comes with a cost. In many countries, including South Africa, these connection fees are partly or fully subsidised. **But the most significant cost associated with access is not the initial connection; it is the usage that follows.** Electricity must be paid for. This means that actual usage of electricity, and thus the socioeconomic impact of that usage, depends almost entirely on the ability of the user to pay for it.^{xii} It is affordability that presents the greatest barrier to access for low-income households and small enterprises, once the infrastructure is in place.

ENABLING UNIVERSAL ACCESS

1 Reliable supply



2 Affordability

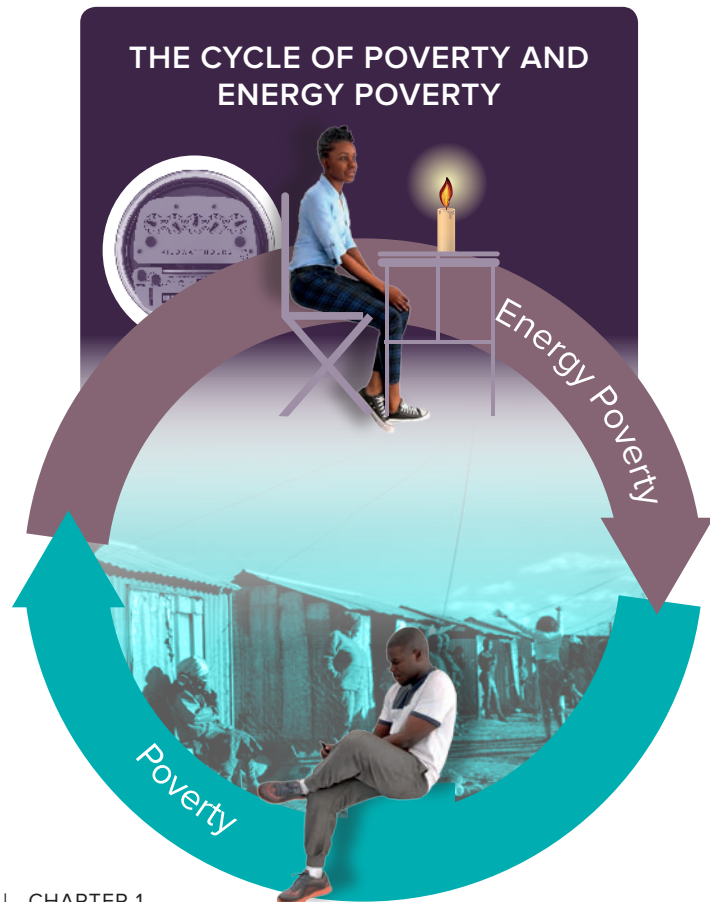


Ending energy poverty may be central to ending poverty but poverty is the main obstacle to ending energy poverty.

Poor households are usually only able to pay for very small amounts of electricity. They can rarely afford the quantities that significantly improve their living standards. Similarly, many small-scale farmers and small-enterprises owners cannot afford enough electricity to significantly improve productivity, or to engage in additional value-added activities that will grow their businesses and support extra employment.

This ‘two-way causal relationship between poverty and the lack of access to adequate energy forms’ creates a vicious circle of energy poverty and poverty.^{xiii} Households are trapped in poverty because they cannot afford the energy required to lift themselves out of it. Small enterprises (including small-scale agricultural and agro-processing initiatives) can only increase productivity and income if they can purchase the minimum amount of energy necessary to do so.

Despite the fact that affordability is central to facilitating access to clean and safe energy, it is seldom explicitly considered and planned for in universal access strategies. In part, this gap reflects that in most developing countries, physical access is the immediate challenge. Similarly, although overwhelming evidence shows how energy facilitates myriad economic activities, small business and small-scale agricultural development policies seldom include details on how to address the affordability challenge.



Affordability is the key to universal access

Universal access to clean and safe energy is critically determined by affordability. Energy poverty can only be meaningfully addressed when energy is genuinely affordable. Electricity can only fulfil its socioeconomic development catalytic potential when poor households and small enterprises can afford enough energy to support significant increases in productivity.

The lack of policy focus to date on the issue of energy affordability in developing countries means that there are no clear benchmarks for defining *affordable access*. United Nations Sustainable Development Goal (SDG) 7 is 'ensuring universal access to affordable, reliable, sustainable, and modern energy by 2030', but few guidelines are provided to measure the affordability component.

The Global Commission to End Energy Poverty regularly mentions the importance of delivering reliable and affordable energy services in developing countries, but nowhere does it indicate what constitutes *affordable*.

Expenditure-based approaches are generally inadequate in developing countries

Where research into energy poverty in developing countries *does* focus on affordability,² it often uses an expenditure-based model that originated in the global North. The benchmark most used in this context to determine energy affordability is 10% of household income: that is, energy expenditure more than 10% of income is deemed unaffordable; and less than 10% is deemed affordable.

The World Bank (*Tracking SDG 7: The Energy Progress Report*)^{xiv} suggests that 'a household is at risk of losing its ability to pay for a specific bundle when electricity spending exceeds 5% of household spending'.

2 Such as Kojima and Trimble, 2016.

This expenditure-based approach has limited utility in developing countries. **Using it hampers efforts to achieve a level of universal access to energy that facilitates equitable poverty reduction and socioeconomic development**, for the following reasons:

- This approach considers current expenditure on energy compared to household income, and then draws conclusions about affordability. If the conclusion is that energy is in fact affordable (i.e. the household spend less than 10% of its income on energy), no further policy action is required. **If affordability is not considered to be a problem, there is no imperative to develop a solution.**
- The use of a simple percentage of household income calculation is inappropriate in an extreme poverty context – precisely one that is absent in most of the global North. In South Africa, more than half of all households live below the upper bound poverty line. One quarter of all households live below the food poverty line: that is, the entire household income is insufficient to meet basic food requirements. In developing countries, particularly in urban areas, low food consumption is mainly due to a lack of income: households cannot afford a basic basket of nutritious food. To consider it ‘affordable’ to divert **any percentage of household income towards energy when that household’s total income cannot ensure food security is entirely at odds with progressive development policies.**

In this high-poverty context, households will only spend tiny amounts on electricity (or substitute energy sources), because they lack the resources to spend any more. In fact, every cent spent on electricity is not being spent on other basic items, notably food. This self-restricting energy usage often results in the percentage of household energy expenditure falling below the affordability threshold. But these households are still experiencing energy poverty; it is merely hidden – a blind spot for policymakers.^{xv}

- **In developing countries, the main reason for energy poverty is that households cannot afford the amount of energy required to lift themselves out of poverty.** Pro-poor energy access policies should aim to facilitate *higher* levels of *clean and safe* energy consumption among these households – to reduce their energy poverty – so that they can raise their living standards and engage in a range of economic activities.

However, most developing country affordability assessments, using the expenditure-based approach, consider only the bare minimum of consumption. For example, the ***Tracking SDG 7: The Energy Progress Report*** suggests that the 5% expenditure affordability threshold be applied to the amount of electricity needed to purchase an ‘essential bundle of electricity services (which) includes a mobile phone charger, four light bulbs operating four hours per day, a fan used for three hours per day and a television for two hours per day, equating to 500 kilowatt-hours (kWh) per household per year’.

This is nowhere near the amount of electricity required to make a meaningful impact on living standards, nor is it sufficient for even modest livelihood or employment-creation opportunities. **Calculating the affordability of this tiny amount of energy is pointless when the overarching goal of access is to reduce poverty and support economic development.**

- Similarly, research that concludes that 30kWh of electricity per month is affordable for African households^{xvi} – because it costs less than 10% of monthly income – ignores the fact that these households require *significantly more* electricity to lift themselves out of poverty. Observing that low-income South African households only consume 50kWh of electricity per month and using that consumption level as a benchmark for affordable access³ is equally misguided.

The real problem is that these households consume so little electricity. Because they cannot afford more. Expenditure-based approaches to calculating energy poverty are effectively hiding that problem, and in the process are preventing electricity from delivering on its development potential.

3 As the current Free Basic Electricity policy in South Africa does.



‘Enabling access’ must be the goal

For electricity to create meaningful socioeconomic benefits – to deliver on its development potential – **users must be able to reliably access the amount required to improve living standards, to increase economic opportunities and to provide new sources of employment.**

- If a household cannot afford electricity for cooking, an electricity connection will not reduce indoor air pollution.
- If an unemployed person cannot access electricity to support economic activities, she will remain unemployed.
- If a small farmer cannot afford electricity to irrigate crops or store perishable produce, farm productivity will be limited.
- If a small business relies on electricity for refrigeration or to power machinery and has an unreliable, poor-quality supply, business income will be reduced.

Access to electricity that translates into *meaningful* socioeconomic development benefits is **enabling access. Policies to achieve universal access to electricity can only deliver their development potential when they are firmly focused on achieving enabling access.**

Minimum threshold level of consumption – MTLC

The enabling-access concept implies that there is a minimum threshold level of consumption (MTLC) of reliable, quality electricity required to generate meaningful socioeconomic benefits; for. At this minimum consumption level, electricity supports households to increase their living standards and engage in economic activities, and supports small enterprises take advantage of new opportunities. **At this consumption level, the full potential of access to electricity on development is realised.**

Conversely, consumption levels below the MTLC may have some benefits for individual users but they do not support national development at any scale. Any poverty-reduction strategy based on electricity access must therefore aim for universal consumption that is at least at the MTLC. This will greatly increase the potential for electricity to support poverty reduction.

Although some – limited – development benefits accrue below the MTLC, meaningful pro-poor impacts are only generated above this level. On a national scale, socioeconomic benefits accumulate as more users consume electricity above the threshold level. **The linkages between SDG 7 and other SDGs (poverty, hunger, health, decent work and economic growth) are notably strengthened as more and more electricity users move above the MTLC.**

MINIMUM THRESHOLD LEVEL OF CONSUMPTION – MTLC



HIGHER ELECTRICITY CONSUMPTION

Above the MTLC, people have access to enough electricity to enable socioeconomic development.

MTLC

Below the MTLC, access to electricity has no significant impact on socioeconomic development

LOWER ELECTRICITY CONSUMPTION



The concept of the MTLC is central to a definition of enabling access to electricity:

UNIVERSAL ENABLING ACCESS = ALL USERS ARE ABLE TO ACCESS THE MTLC

The implication is that universal enabling access policies must focus on addressing barriers that prevent users from accessing the MTLC. One of the most important barriers is **users' ability to afford the MTLC, and it is this affordability challenge that should be central** (and not whether users can 'afford' a much smaller amount of electricity). This is the only approach that will ensure that the vicious circle of poverty and energy poverty is broken.

In line with this definition of enabling access, data that measures access to electricity (i.e., progress towards SDG 7) should reflect how many users are consuming at or above the MTLC, not just how many have a connection. The former indicates enabling (genuine) access, while the latter is mostly meaningless in terms of measuring the impact of electricity in facilitating development.

The actual level of the MTLC (in kWhs of electricity per month) to be used for measuring enabling access will vary. It depends on the type of user (small farmer versus small enterprise versus household) and other local conditions, such as whether homes require heating for long periods of the year. The MTLC will be determined empirically in different settings, based on detailed data around the linkages between electricity and economic activity, between electricity and actual household requirements and circumstances.

In summary, for electricity to support socioeconomic development, the goal must be universal enabling access. Universal enabling access is achieved when all users can consume enough reliable and quality electricity to increase their living standards and create new economic opportunities. Reaching this goal requires measures of affordability that are appropriate to the problem we are trying to solve. Better, and more comprehensive, conceptualisations of affordability linked to enabling access are urgently required if SDG 7 is ever to be achieved as it was intended. ■

Energy access is the 'golden thread' that weaves together economic growth, human development, and environmental sustainability.

GLOBAL COMMISSION TO END ENERGY POVERTY







CHAPTER 2

The Promise: Electricity enables South Africa's transformation

No political democracy can survive and flourish if the mass of our people remain in poverty, without land, without tangible prospects for a better life. Attacking poverty and deprivation must therefore be the first priority of a democratic government ... to begin to meet the basic needs of people – jobs, land, housing, water, electricity, telecommunications, transport, a clean and healthy environment, nutrition, health care and social welfare. In this way we can begin to reconstruct family and community life in our society.

RECONSTRUCTION AND DEVELOPMENT PROGRAMME (1994)





The transformative state

The post-1994 South African state envisioned significant social and economic transformation from the apartheid past. Reducing poverty and inequality – across every part of daily life through access to opportunities, assets and state-provided services and support – have been the central targets of that transformation agenda. The rallying cry: ‘a better life for all’.

The process of transforming the institutions of the South African state is premised on the fact that the new democratic state has a specific mission; that of meeting the new developmental objectives which will help to create a better life for all.

WHITE PAPER⁴ ON LOCAL GOVERNMENT (1998)

The Constitution commits government to take reasonable measures, within its available resources, to ensure that all South Africans have access to adequate housing, health care, education, food, water and social security.

WHITE PAPER ON LOCAL GOVERNMENT (1998)

Progress has, however, been slow. South Africa is one of the world’s most unequal countries, and inequality is little changed since 1994. Large South African cities rank among the most unequal across the globe. The country has high poverty levels: 55% of the population live below the upper bound poverty line⁵ and 25% of the population – more than 4 million households – live below the food poverty line.⁶

4 A white paper is a document that sets out the broad goals of government policy – its policy principles, guidelines and intentions. It is not legislation.

5 An income of R5,072 per month for a family of four at 2020 prices.

6 Which means that total household income is insufficient to purchase the basic nutrition required by the households.

Poverty, in turn, is driven by unemployment, precarious part-time or temporary employment for many, and low wages (relative to the cost of living) for a significant number of the employed (such as farmworkers and domestic workers). South Africa's expanded unemployment rate⁷ was just below 47% in 2021.¹ Unemployment is particularly high among young people: 2 out of every 3 South Africans under the age of 35.

Food insecurity and child malnutrition are serious outcomes of high poverty levels. Most South African households purchase most or all their food⁸ and income is thus the main driver of household nutrition outcomes.

In the past 18 years, we have built democratic institutions, transformed the public service, extended basic services, stabilised the economy and taken our rightful place in the family of nations. Despite these successes, too many people are trapped in poverty and we remain a highly unequal society.

NATIONAL DEVELOPMENT PLAN (NDP 2030)

We have given ourselves 100 days to finalise a comprehensive social compact to grow our economy, create jobs and combat hunger. ... As we work to grow the economy and create jobs, we will expand support to poor families to ensure that no person in this country has to endure the pain and indignity of hunger.

PRESIDENT CYRIL RAMAPHOSA (STATE OF THE NATION ADDRESS, 10 FEBRUARY 2022)

⁷ Which includes discouraged work seekers.

⁸ The number of households that engage in subsistence agriculture is very low, limited by urbanisation and demands for land for housing, limited national water supplies and generally poor support infrastructure in rural areas.

Policies intended to defeat poverty and inequality

Responding to the twin challenges of poverty and inequality, the South African government has drawn up myriad policies, strategies and plans, all with more-or-less the same central themes:

- **Job creation**, largely through supporting small business development, improving equitable access to economic opportunities, education and skills training, and investment in infrastructure. Small business development and support is considered important for reducing inequality by increasing access to economic opportunities. Small enterprises are also generally viewed as the best way to create many new jobs;
- **Social support grants**, such as old-age and disability grants and the child support grant (introduced in 1998). The latter is currently R480 per child per month⁹ and benefits just over 12 million children. A R350 per month¹⁰ Special Covid-19 Social Relief of Distress grant is intended to remain in place until March 2023. Almost half of all South Africans (46%) currently receive a social grant.ⁱⁱ
- Ensuring **universal access to basic services** such as housing, healthcare, water, electricity and sanitation. Apartheid – the key driver of today’s poverty and inequality – excluded the majority of households from access to quality and reliable services, such as electricity, water and sanitation. This extended to most black-owned businesses that had to operate in areas with limited (or no) services. In response, increasing access to these basic services has been a central focus of the post-apartheid state. Most of the responsibility for this service delivery lies with local municipalities, by Constitutional mandate.
- **Access to assets** such as land and financial resources.

The long-term solution to the nation’s unemployment crisis is to create a nation of entrepreneurs.

SMALL BUSINESS DEVELOPMENT MINISTER LINDIWE ZULU (2014)

⁹ Approximately USD32 per month.

¹⁰ Approximately USD23 per month.

The establishment of the Ministry of Small Business Development in 2014 was undoubtedly a victory for the SMMEs and Co-operatives community. This marked the beginning of a centralised Department geared towards the reconfiguration of the economy by strategically placing small and medium business owners at the heart of economic reconstruction, transformation, and inclusive growth.

DEPARTMENT OF SMALL BUSINESS DEVELOPMENT ANNUAL REPORT 2020/21

Government will continue to lead efforts to mitigate the triple challenges of poverty, inequality and unemployment by adopting policies and strategies that prioritise the basic needs of people, particularly those residing in rural areas. The National Development Plan (NDP), Industrial Policy Action Plan (IPAP), Agricultural Policy Action Plan (APAP) and New Growth Path (NGP) identified the latent potential of downstream agro-processing activities as a catalyst to spur growth and development through its backward and forward linkages with other sectors of the economy. The agro-processing sector, has over the years, displayed the highest employment multipliers in the economy, albeit highly concentrated.

Government's commitment is to ensure that small and medium agro-processors, particularly those in rural areas, are developed and supported to be competitive and to actively participate in the mainstream agro-processing economy, additionally, to ensure that small and medium agro-processors progressively increase their contribution to the country's gross domestic product. Comprehensive support and development services to small and medium agro-processors are some of the critical prerequisites for a sustainable and competitive rural agro-processing industry.

NATIONAL DEPARTMENT OF AGRICULTURE (2017)

All citizens should have equal access to the services to which they are entitled.

WHITE PAPER ON LOCAL GOVERNMENT (1998)

South Africa aims to be a **developmental state**, which the National Development Plan (NDP 2030, the country's overarching development plan) defines as one that *builds the capabilities of people to improve their own lives, while intervening to correct historical inequalities*.

An enormous proportion of very basic needs are presently unmet. In attacking poverty and deprivation, the RDP aims to set South Africa firmly on the road to eliminating hunger, providing land and housing to all our people, providing access to safe water and sanitation for all, ensuring the availability of affordable and sustainable energy sources.

RECONSTRUCTION AND DEVELOPMENT PROGRAMME (1994)

The powers and functions of local government should be exercised in a way that has a maximum impact on the social development of communities – in particular meeting the basic needs of the poor – and on the growth of the local economy. Through its traditional responsibilities (service delivery and regulation), local government exerts a great influence over the social and economic well-being of local communities.

WHITE PAPER ON LOCAL GOVERNMENT (1998)

Electricity will enable transformation

A consistent theme across South African socioeconomic transformation and development policy over the past 28 years is the importance of energy (electricity, in particular) in reducing poverty and inequality. A variety of foundational policy documents, legislation, national development plans and strategies agree that electricity is a critical enabler; without which the state's ambitious transformation and development agenda is unachievable.

The 1998 White Paper on Energy Policy proposed policy guidelines and principles for fundamentally realigning the energy sector to support the state's post-1994 socioeconomic transformation agenda.

The multiple socioeconomic development benefits associated with increased access to electricity set out in the previous chapter are well recognised in South African policy documents:

- They recognise that growing the economy – including microenterprises and businesses in the informal sector – and creating new employment opportunities is critically dependent on enterprises having access to electricity.
- They are clear about the negative health implications for households forced to use polluting fuels because they cannot access electricity, and the social benefits that will accrue if this changes.
- They view universal household access to electricity as the cornerstone of strategies to improve standards of living, reduce inequality and achieve social development targets.

“
Energy is the life-blood of development. Development is about reducing poverty and about increasing access to basic needs so as to allow people the freedom of self-development. ... The energy sector can contribute to economic growth and employment creation, as well as providing infrastructure for households

WHITE PAPER ON ENERGY POLICY (1998)

Electricity is a prerequisite for social development

NATIONAL DEVELOPMENT PLAN (NDP 2030)

The energy sector has been shown to be an economic game changer globally and, for South Africa, energy is the catalyst to revolutionise our economy and drive economic transformation.

STRATEGIC PLAN 2015 – 2020 (DEPARTMENT OF ENERGY)

Electricity is one energy carrier that makes a significant contribution to our economic growth and development.

WHITE PAPER ON ENERGY POLICY (1998)

Energy is a basic need and a vital input into the informal sector.

RECONSTRUCTION AND DEVELOPMENT PROGRAMME (1994)

Good basic services, apart from being a constitutional right, are essential to enable people to support family life, find employment, develop their skills or establish their own small businesses.

WHITE PAPER ON LOCAL GOVERNMENT (1998)

”

“
Energy production and distribution should not only be sustainable, but should also lead to improvement of the standard of living for all of the country’s citizens.

WHITE PAPER ON ENERGY POLICY (1998)

Energy security for low-income households can help reduce poverty, increase livelihoods and improve living standards. ... Productive activities in underdeveloped areas will economically empower the poor. Energy, particularly electricity, is a key requirement for these productive activities.

WHITE PAPER ON ENERGY POLICY (1998)

Access to safe drinking water, electricity and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs.

NATIONAL DEVELOPMENT PLAN (NDP 2030)

Government will promote access to basic energy services for poor households, in order to ameliorate the negative health impacts arising from the use of certain fuels.

WHITE PAPER ON ENERGY POLICY (1998)

Basic services enhance the quality of life of citizens, and increase their social and economic opportunities by promoting health and safety, facilitating access (to work, to education, to recreation) and stimulating new productive activities.

WHITE PAPER ON LOCAL GOVERNMENT (1998)

”

South Africa has pledged itself to the attainment of the Sustainable Development Goals (SDGs). SDG 7.1 is (by 2030) to ensure universal access to affordable, reliable, sustainable and modern energy for all. It is important to note that the country has stated that it is also still firmly committed to the principles set out in the 1998 White Paper on Energy, as these are viewed as being well-aligned with SDG 7.

Although the White Paper is more than twenty years old, it is still relevant and in line with all SDG 7 focus areas. ... Overall, access to affordable energy services is identified as the first (priority) energy policy objective (for South Africa).

SDGS COUNTRY REPORT 2019 – SOUTH AFRICA (STATISTICS SA)

South Africa is clearly committed to SDG 7 and its goal of universal access to electricity.

The country believes that it is making good progress towards this goal:

South Africa is making headway towards achieving universal access to electricity. While there was a slight decline in the percentage of the population with access to electricity in 2015 relative to the year 2014, the succeeding 2016–17 period saw a marginal growth in electrification. The percentage of the population with access to electricity grew past the levels recorded in 2014. Between the years 2014 and 2017, the percentage of the population with access to electricity increased from 93.12% to 95.27%.

SDGS COUNTRY REPORT 2019 – SOUTH AFRICA (STATISTICS SA)

We aim to reach universal access to electricity by 2025.

STRATEGIC PLAN 2020 – 2025 (DEPARTMENT OF ENERGY)

National Electrification Programme

The cornerstone of South Africa's plan to achieve universal access to electricity has been the implementation of an ambitious National Electrification Programme (NEP). The NEP was designated as an accelerated Presidential Lead Project under the Reconstruction and Development Programme (RDP),¹¹ thereby prioritising access to electricity in the development agenda. Households that this programme targeted for electrification are in relatively underdeveloped areas (both rural and urban), historically designated for black South Africans. In these areas, electrification had been prevented by the politics of apartheid, rather than practical constraints.ⁱⁱⁱ

In terms of the RDP, electrification of previously excluded households was seen as **infrastructure development**^{iv} (in line with conceptualising electricity as an enabler of development), and not solely as a poverty-alleviating 'charitable' donation. This underscored the state's belief that access to electricity is necessary for economic development, employment creation and poverty reduction.

In respect of the number of households connected to a formal electricity supply, the NEP has been a considerable success, and is one of the largest electrification programmes in the world. Some 7.5 million households were connected to the grid from 1994 to 2018, and South Africa's household electrification rate has risen from 35% in 1990 to a current level of around 87%. This is considerably higher than any other country in sub-Saharan Africa, where the average is less than 50%.^v

South Africa's electrification programme is remarkable by most measures. Prior to 1990, less than a third of the population had access to electricity. By the end of the decade that proportion had doubled.^{vi}

The electrification programme will be strengthened in order to continue its contribution to socio-economic development, job creation, poverty alleviation as well as addressing past imbalances. Accordingly, this project will assist the Department to fulfil its goal of achieving universal access in formal households by 2014.

STRATEGIC PLAN 2010 – 2012 (DEPARTMENT OF ENERGY)

¹¹ The first national development plan of the post-apartheid state.

The NEP is currently implemented by both Eskom and local municipalities. Prior to 1994, Eskom had embarked on a programme of electrification in many black township areas which at the time did not fall under the service delivery mandate of any municipality, since these focused on service provision to designated white areas. In later years, municipalities (specifically the larger metros) undertook a part of the electrification work, but Eskom remained the largest implementer. As a result, a significant percentage of low-income households (notably, but not exclusively in urban areas) became customers of Eskom, and not a municipality. This situation has persisted, even though all households now fall under a municipality, which provides all the other basic services such as water and sanitation. Currently, most municipalities have households who are supplied with electricity by Eskom *and* households who are supplied by the municipality.¹² Given the NEP's focus on previously unserved low-income areas, together with Eskom's earlier township electrification programme, Eskom probably directly supplies far more poor households than municipalities do.

NEP beneficiaries are required to pay a relatively small connection fee, which does not cover the entire cost of the connection, correctly assumed to be beyond the reach of most low-income households. The majority of the electrification cost has thus been subsidised by the state: initially most of the programme was funded by Eskom itself,¹³ but from the late 1990s, the capital costs of the programme have been funded through the national budget, via a conditional grant. Grant allocations are made to both Eskom and municipalities.

12 In some municipalities, Eskom supplies all households and the local municipality does no electricity distribution.

13 Using a variety of financing mechanisms, including cross-subsidies from users.

Affordable universal access was the ultimate policy goal

Electrification of households and the extension of the electricity distribution grid was not originally envisaged as the only thing necessary to achieve universal access to electricity: the 1998 White Paper on Energy Policy had, as the first of its five overarching strategic policy objectives, the following: *Government will promote access to affordable energy services for disadvantaged households, small businesses, small farms and community services* (our emphasis). **That is, from the very inception of reimagining the energy sector as a facilitator of socioeconomic transformation, affordable access was placed front and centre.**

“As provided for in our Constitution, the state must establish a national energy policy which will ensure that the national energy resources shall be adequately tapped and developed to cater for the needs of the nation. Energy should therefore be available to all citizens at an affordable cost.

WHITE PAPER ON ENERGY POLICY (1998)

The White Paper on Energy clearly stated that all subsequent (post-1998) legislation regulating the energy sector should include the affordability requirement. As a result, the phrase *affordable access* runs through all major energy policy documents and legislation that followed the White Paper. As an example, the National Energy Act (34 of 2008) emphasises affordability in facilitating universal access:

Energy access by households

5. (1) The Minister must adopt measures that provide for the universal access to appropriate forms of energy or energy services for all the people of the Republic at affordable prices.

Our efforts must be geared towards the fight against energy poverty whose effects are felt by communities who are facing difficulties in affording basic energy services which arise directly from poverty and underdevelopment.

STRATEGIC PLAN 2010 – 2012 (DEPARTMENT OF ENERGY)

Both the White Paper on Energy and the White Paper on Local Government recognised that some households are too poor to pay even a small amount for electricity (and other basic services). There was a clear commitment that such households should not be excluded from the benefits of services because of the inability to pay, and that the state should subsidise their access in these circumstances.

There is a need for subsidisation to ensure that poor households, who are unable to pay even a proportion of service costs, have access to basic services.

WHITE PAPER ON LOCAL GOVERNMENT (1998)

Free Basic Electricity

This commitment led to the various **free basic services policies** (electricity, water, sanitation and waste removal), which aim to provide a minimum level of free services to households unable to pay for them. The Free Basic Electricity (FBE) policy was introduced in 2003. The original policy document emphasises three points:

- Electricity consumption by poor households needs to *increase* for the developmental benefits of electrification to materialise.
- Electrification on its own does not automatically result in increased consumption **to the extent required to facilitate development.**
- Affordability is the main barrier to increased electricity consumption and if affordability is not addressed, the benefits of electrification would be limited.

The policy did not, however, propose any target for how much electricity households *should* consume to give rise to development benefits, or what cost would be ‘affordable’.





In addressing the energy imbalance in the domestic sector, we have embarked on an aggressive Integrated National Electrification Programme (electrification programme), which seeks to address the electrification backlog by 2012. While the electrification programme is progressing well, we soon realised that there is a need to address affordability issues in electrified households. ... Low electricity consumption patterns indicate that poor households do not benefit from the efficiency and environmental benefits afforded by electrification due to the severity of poverty. This policy seeks to address ways and means through which government interventions can bring about relief to poor electrified households and ensure optimal socio-economic benefits from the National Electrification Programme.

FREE BASIC ELECTRICITY POLICY (2003)

The FBE policy allows for qualifying households to receive 50kWh of free electricity each month. That amount was determined based on assessments of actual usage within poor households at the time. This official amount of the FBE has not been increased since 2003, but there are some municipalities that do allocate slightly higher amounts, at their own discretion.

Conventionally, the average poor household does not consume more than 50kWh of electricity per month.

FREE BASIC ELECTRICITY POLICY (2003)

The FBE policy (along with all the other free services) is implemented by individual municipalities: each municipality sets criteria for the identification and registration of qualifying households – so-called indigent households. Unless a household is officially registered as indigent by a municipality, it cannot receive the benefit, no matter how poor it may actually be. Even where households are directly supplied by Eskom, the municipality is responsible for identifying qualifying households. The onus is then on the municipality to share that information with Eskom, failing which the latter will not allocate any FBE.

Although the 2003 FBE policy made some recommendations on household indigency qualification and registration criteria (with the proviso that associated administrative costs be as low as possible), each municipality effectively has complete autonomy in setting its own indigency criteria. This autonomy was intended to give municipalities the flexibility to adjust policies to reflect local circumstances – such as levels of poverty and the cost of supplying the FBE.

Notably, although the White Paper on Energy Policy was clear that *government will promote access to affordable energy services for disadvantaged households, small businesses, small farms and community services*, there is no free electricity allocation available specifically for small businesses or small farmers.

The value chain for electricity has five main components:^{vii}

- The source of energy;
- The generation of electricity (converting source to electricity);
- Transmission (of the bulk supply from the site of generation to the site of distribution);
- Distribution (to the end user); and
- The end user.

These components are organised variably in different countries. In South Africa, the key points are the following:

- Generation is dominated both by coal-fired generation plants and the national electricity utility – Eskom. Renewable sources comprise a minimal part of installed generation capacity, and have been built largely via the country’s Independent Power Producer (IPP) strategy. Between 40% and 45% of Eskom’s generated electricity goes to municipalities. Until recently, Eskom has been the only permitted buyer of generated electricity from IPPs, with distributors unable to approach non-Eskom generation companies directly. The legislation limiting municipal purchases has recently changed and municipal distributors are now entitled (after meeting strict financial management criteria) to purchase power directly from IPPs or to establish their own IPPs.



- Electricity bulk transmission is currently the sole preserve of Eskom.
- In some countries there is a difference between the owner of the distribution grid (i.e. the physical infrastructure along which electricity is distributed) and the entity that provides the electricity to the end user. In such examples, the provider to the end user pays the grid owner a fee. In South Africa, however, these functions are almost always combined. That is, the owners and operators of the grid are the same as those selling the electricity that travels to end users. Recent regulatory changes (such as allowing for wheeling)¹⁴ have not yet altered this in any significant way.

14 Wheeling allows electricity generators to supply end users via someone else's transmission or distribution grid.

Local government's role

Electricity distribution is, for the historical reasons discussed above, shared between the national electricity utility (Eskom) and local municipalities. The details of this sharing vary considerably: in some municipalities all the distribution is undertaken by Eskom, but the more common situation is a division of users between the municipality and Eskom. In general, mines, farms, remote rural areas and large industry, together with many low-income urban households, receive electricity from Eskom and other users obtain it from their municipality. Eskom currently directly supplies almost 50% of households. This split in distribution has long been a bone of contention with local government, which claims that in terms of the Constitution, it has the authority to distribute electricity, and that existing Eskom customers within a municipality should be transferred to the municipality.

Providing basic services (including electricity) within its geographic area is local government's most important function. It is the central contribution that local government is intended to make towards South Africa's ambitious socioeconomic development agenda.

The role of electricity in financing municipalities

However, besides contributing to national development goals, providing services also fills another critical role in local government: the sale of services, together with property rates and taxes, is intended to be the main source of local government income. It is how municipalities are supposed fund their ambitious post-1994 development mandate – with only a relatively small funding top-up from the national fiscus via the equitable share and conditional grants.

The current local government fiscal framework is based on the 1998 Local Government White Paper (RSA, 1998b) finding that local government (in aggregate) had 'considerable' own-revenue raising capacity. In fact, the Local Government White Paper concluded that 90% of local government's operating revenue requirements, in aggregate, could be covered by own revenue collection. This assumption means that local government receives less than 10% each year of nationally raised revenue, through the annual division of revenue.

Within this 90% assumption, the White Paper set out a fiscal model for local government that included the following:

- a. 73% of total operating expenditure requirements (including critical expenditure categories such as municipal infrastructure maintenance) could be funded from property rates and the sales of trading services such as electricity, water and sanitation; and
- b. Just over 37% of total operating expenditure requirements across local government could be funded by electricity sales alone.

This model requires that services – including electricity – have to be priced high enough to ensure that the municipality has sufficient income to meet its operating expenses.

A conflict of interest?

However, the Local Government White Paper was also clear that **within this proposed fiscal model of service charges-as-income, municipalities still had to respect their fundamental developmental role by ensuring (i) that services were priced at a level that made them affordable for all users and (ii) that households unable to pay for basic services were still able to access them.**

Municipalities need to develop a clear tariff policy, including a policy to ensure that indigent households have access to basic services.

LOCAL GOVERNMENT WHITE PAPER (1998)

Another reason why services had to be affordable was so that municipalities could actually collect payment:

Credit control measures will only be successful if targeted relief is available for those households who cannot afford to pay for services.

LOCAL GOVERNMENT WHITE PAPER (1998)

The White Paper did not see any conflict between these two goals — services priced at a level that all households could afford **and services priced at a level that would ensure sufficient income for local government. The assumption was that there was a point of convergence in tariff setting at which both goals could be achieved, on which the current municipal financial system is based.**

Financial sustainability requires that municipalities ensure that their budgets are balanced (income should cover expenditure). Given revenue constraints, this involves ensuring that services are provided at levels which are affordable, and that municipalities are able to recover the costs of service delivery.

Municipalities can ensure affordability through ... setting tariffs which balance the economic viability of continued service provision and the ability of the poor to access services.

LOCAL GOVERNMENT WHITE PAPER (1998)

That is, there was no anticipated conflict of interest between affordable services, relief for all indigent households and sufficient cost recovery from services charges ensuring that electricity would contribute, in aggregate, 37% of total operating expenditure requirements. The official position was, therefore, silent on how to proceed if 'economically viable' tariffs were, in fact, unaffordable for significant numbers of households.

In summary, the South African government appears to be committed to, and making good progress towards, universal access to electricity. But appearances can be very deceptive. ■





CHAPTER 3

The Reality: Energy policy deepens poverty and inequality

‘Electricity is important to us because it is essential to many aspects of our lives. We need it in cooking, cleaning, television and other things. It is essential to sort out lives. We would walk around with dignity just like everyone else.’

OLWETHU, EYADINI, CAPE TOWN

Acknowledging potential does not mean fulfilling it

South Africa's official policies, strategic documents and plans suggest that the government understands very well the strong linkages between universal access to electricity and attaining critical national development goals such as economic development, job creation, poverty reduction and improvements in living standards. Given the current socioeconomic situation – high unemployment, low economic growth and increasing household poverty – there seems to be **an even stronger case for universal access to electricity in 2022 than there was in 1998** (when the White Paper on Energy Policy was released).

The success of the national electrification programme – a household electrification rate (87%) significantly higher than that of most developing countries – should have been a major step towards universal electricity access. Instead, real progress has been limited. Millions of households lack the kind of access to electricity that could change their lives. Some have no connection at all – mostly in informal urban settlements and remote rural areas. Many more **do** have a connection, but cannot afford to use more than a tiny amount of electricity each month.

The current situation represents **a missed development opportunity of almost unimaginable scale**. The tens of billions of Rands invested in the NEP will not generate the development benefits that South Africa so desperately needs if people cannot actually use electricity to facilitate improvements in their lives. *None* of the current policies and strategies in respect of electricity access will ever change this.

Why not?

Physical access to the electricity grid (electrification) does not guarantee meaningful or equitable development benefits, even if the target of universal access is achieved. The only kind of access to electricity that translates into meaningful development benefits is ***universal enabling access***.

UNIVERSAL ENABLING ACCESS = ALL USERS ARE ABLE TO ACCESS THE MTLC

Enabling access requires:

- A physical connection to a reliable, quality supply, and
- The ability to actually use an amount of electricity equal to or greater than the Minimum Threshold Level of Consumption (MTLC)

South Africa has spent a great deal of time, money and effort on the first requirement and essentially none on the second. But if users cannot access the MTLC, all that is generated by an electrification programme is a lot of plug points on walls. And the biggest barrier to accessing the MTLC is the ability of users to pay for it.

We want electricity, we want to pay for electricity but the boxes they (Eskom) installed are fucked up. They are cheap and they break easily.

THABISO, PROTEA GLEN SOUTH, JOHANNESBURG

The state's belief that the electrification programme is making a significant contribution to socioeconomic development is incorrect. But every part of the state that is responsible for delivering universal access to electricity seems blissfully ignorant of this fact. Official reporting on progress towards universal access and SDG 7 invariably takes the position that South Africa is doing extremely well in this regard; that the goal of universal access is just within reach. For millions of South African households, however, their physical connection has not resulted in the actual level of electricity usage that would support a path out of poverty. They do not enjoy anything near enabling access.



South Africa is certainly not the only country that has failed to focus on the bigger and more important picture of enabling access. Most developing countries that aim to achieve universal access to electricity do not have a detailed plan for how all users will be able to afford the MTLC. Many assume that there is an automatic relationship between physical electrification and enabling access. South Africa is far ahead of most of these countries in terms of electrification, and so it is critical that the failure of this assumed causal relationship to materialise is noted.

But the South African state is making things even worse. That is, not only does policy fail to promote enabling access, there are also a range of strategies that *actively undermine* the achievement of enabling access.

How did we end up in this situation?

The policy failure to promote universal enabling access

South Africa has failed to embrace the critical concept of **universal enabling access to electricity**, that is, access that actually delivers the socioeconomic development potential of the significant investment in expanding electrification. The failure has been in both the enabling component *and* the universal component.


While the state has pronounced repeatedly on the importance of reliable and affordable electricity supply for mining, industry and big business, it has paid far less attention to other users: low-income households, small- and micro-enterprises and small farmers. That is, **the state is neglecting exactly the users where the greatest positive impacts on poverty, employment and living standards would be generated by enabling access to electricity**. And in doing so, energy policy is effectively exacerbating inequality.

Universal enabling access to electricity is attained when all users are able to (consistently) afford the relevant MTLC, and supply is both reliable and of a reasonable quality. South Africa's supply reliability problems are well-known (constrained generation capacity and regular periods of load shedding) and get massive public attention. But these are less important barriers to achieving universal enabling access than the **affordability of the MTLC**.

The 1998 White Paper on Energy Policy stated that strategies to improve access to electricity – and to reap the development potential of that access – had to pay attention to affordability:

Government will promote access to affordable energy services for disadvantaged households, small businesses, small farms and community services. The achievement of this objective is fundamental to government's reconstruction and development programme, and to the future socioeconomic development of our country (our emphasis).

WHITE PAPER ON ENERGY POLICY (1998)



It is one (of) the things that the government has promised us; that we will get electricity, water and sanitation. These are basic human needs, so how will you live without electricity?

CHRISTOPHER
PRINCESS, JOHANNESBURG

The majority of us are unemployed and we cannot even pay for the flat rate. But if you don't have money, you should still be able to have electricity.

SIPHIWE,
THEMBELIHLE, JOHANNESBURG



The failure of legislation following the White Paper

The White Paper did not deal with how its affordable access objectives were to be achieved — this is not the purpose of such a document. However, it was intended to guide all subsequent legislation and plans: these were meant to give full effect to the White Paper’s intentions, but they have failed to do so.

The first important piece of legislation – intended to deliver the objectives of the White Paper, including affordable access for households, small business and small farmers – was the National Energy Act of 2008. But the word affordable appears only twice in that Act: right at the beginning, when the aim of the Act is described (‘to ensure that diverse energy resources are available in sustainable quantities and at affordable prices’) and in section 5 (‘energy access for households’): 5(1) states that

“The Minister must adopt measures that provide for the universal access to appropriate forms of energy or energy services for all people of the Republic of South Africa.”

And section 5 (2) states that

“in meeting this objective, the Minister is required to take into account affordability.”

But the Act contains no details of how to determine whether an electricity tariff is ‘affordable’, nor does it set any benchmarks or targets for affordability. The result is that it does nothing at all to advance the goal of affordable access.

Instead, the Act shifts the responsibility for delivering the affordability objective onto the Integrated Energy Plan (IEP)¹⁵ by stating in section 6(2):

“The Integrated Energy Plan must deal with issues relating to the supply, transformation, transport, storage and demand for energy in a way that accounts for ...

- (c) affordability*
- (d) universal accessibility and free basic electricity;*
- (e) social equity; ...*
- (j) contribution of energy supply to socioeconomic development”*

However, the IEP (2003) also failed to progress the affordability goal:

- Nowhere in the IEP is there a definition or benchmark for assessing whether an energy service is in fact affordable.
- No oversight mechanism is implemented to monitor the realisation of universal affordable access to energy.

The result is practically no progress – in over 20 years – towards affordable access because policymakers have failed to consider exactly what constitutes *affordability* for end users of electricity.

The only two policy efforts in respect of affordable access to electricity since 1994 have been:

- Cross-subsidisation through stepped tariffs, which mean that high electricity users effectively subsidise a lower cost for those who use less (but without any clear strategy to ensure that the lowest tariffs are in fact affordable); and
- The Free Basic Electricity (FBE) policy issued in 2003.

The FBE policy, intended to provide almost 11 million low-income households¹⁶ with 50kWh of free electricity every month. This policy has been a dismal implementation failure across local government:¹ fewer than three million households actually receive the benefit.

15 The Integrated Resource Plan (IRP) is not directly mandated to give effect to these particular objectives, although resource planning obviously has an impact on both access and affordability.

16 10.9 million in the 2022/23 National Budget.



A lot of people have children here, and many kids are at crèche. When there is no electricity the crèche cannot cook anything for these kids.

PHILLIP, EYADINI, CAPE TOWN

I, too, I have never experienced a month where we do not run out of units. I just wish we had that free electricity, you know.

RESIDENT OF MAUTSE, FREE STATE

50kWh is not enough

The amount of **50kWh per household per month is nowhere near the MTLC required to support socioeconomic development**. It was not set with that goal in mind. Instead, the amount was selected because that was the average monthly amount of electricity consumed by poor households when the policy was formulated. This was all that these households could afford, and it was clear at the time that this came nowhere near the amount needed to significantly increase living standards¹⁷. As an example, the FBE policy document is clear that there is no provision in the 50kWh for cooking with electricity, even though this is the most important use in most households. No electricity for cooking has significant detrimental health and nutritional impacts. The idea that electricity could be used to create employment and livelihood opportunities appears never to have occurred to the drafters of the FBE policy.

Poor households need to consume significantly more electricity than they can currently afford *precisely* so that they can lift themselves out of poverty. But this reality is not informing energy policy. Hence, the most important effect of the FBE policy has been to *erase* the linkages between increased electricity consumption and socioeconomic development. Instead, the official stance is to grudgingly hand out a tiny amount of electricity, and to label it 'progress'.

¹⁷ Reflected in the fact that the FBE policy was clear that poor households had to consume more electricity in order for the development potential of the electrification programme to be realised.

The policies actively eroding enabling access

In addition to the policy gaps arising from a failure to grasp the factors necessary to achieve universal enabling access to electricity, the state has adopted numerous policies that actively undermine this goal; essentially guaranteeing that it will never materialise.

User-pays cost-recovery model

The policy that is most undermining universal enabling access is the user-pays cost-recovery model that applies to all the basic services provision, and notably water and electricity. This model is central to how local municipalities provide services, and to Eskom's electricity pricing model. It requires that the full cost of providing a service is paid by the users of that service (save for the small portion provided for free). This might seem reasonable (and it is the preferred approach to energy service provision in many countries), but in South Africa, where universal access to the MTLC is crucial to leveraging broad-based development, it is an astonishingly poor choice of service delivery model.

High levels of household poverty mean that **a significant number of users simply cannot afford the cost-recovery based electricity tariff**, even when it has been cross-subsidised through charging other users a higher (stepped) tariff. Research shows that poor households, constituting more than half of all South African households, strictly ration the amount of electricity they use, because of the cost. And they regularly borrow money to pay for even these small amounts.ⁱⁱ

As a result, **all the potential pathways out of poverty that are created by enabling access to electricity are closed to them, and millions of poor households are permanently trapped in poverty.**

This outcome is the exact opposite of what the post-apartheid state had originally intended with energy policy – that universal access to electricity would provide a pathway **out of poverty**.

We are always stressed about electricity.

MATSHIDISO, EYADINI, CAPE TOWN

Other coping strategies included borrowing money, cutting down on ‘luxury’ items like margarine and peanut butter, replacing more expensive food options with cheaper options like maize meal for rice, reducing the consumption of coffee and tea to free up sugar and milk, and limiting the number of cooked meals to save on electricity.

CHILDREN, SOCIAL ASSISTANCE AND FOOD SECURITY (2022)¹¹¹

I would like to cook bread for my children almost every week, but sometimes I have to weigh cooking bread and warming water in the morning for school.

RESIDENT OF MAUTSE, FREE STATE

The obstacle of the local government fiscal framework

There has been no attempt by the state either to prioritise genuine affordability in tariff setting, or to manage the cost base to ensure that the electricity price is low enough for households to use it. Eskom's horror show of corruption and mismanagement – and its impact on rapidly rising electricity costs – has been well documented. But less attention is given to the local government fiscal framework's role in pushing up costs for users. Local municipalities are central to households' and small enterprises' ability to access all basic services, including electricity.¹⁸

The local government fiscal framework is the set of laws and policies that determines how a municipality is financed. Profit on electricity sales is intended to be the largest contributor to local municipalities' revenue. By law, a municipality is not allowed to have an unfunded budget – to plan to spend more money than it is likely to have as revenue. So, although many municipal officials understand that poor households cannot afford to pay even the lowest tariffs, the municipality has little to no discretion in reducing these costs: **electricity revenue is the single biggest category of municipal revenue, and the municipality cannot have an unfunded budget.**

As a result, increases in electricity charges are the main tool available to municipalities to balance their books, particularly since they are also affected by Eskom's increasing costs. The state's policy priority is clearly maximising the flow of electricity revenue, and not leveraging its development potential. The South African Reserve Bank reported that the cost of electricity in municipalities increased by 177% from 2010 to 2020. During the same period, the increase in headline consumer inflation was 68%.^{iv}

It is not just the per kWh tariff that municipalities increase to raise revenue, since limits to these charges are set in the annual price determinations made by the National Energy Regulator (NERSA): current legislation allows municipalities to charge a range of other fixed charges to users. The impact on residential user costs can be astronomical: a recent study^v showed that a residential user in the City of Joburg on a billed account (i.e. not a prepaid system) would only be able to buy 93kWh for R1,000, since R825 of the first R1,000 paid every month goes to fixed charges.

A vicious circle of poverty

The current FBE policy is a completely inadequate response to this situation. And so, **a vicious circle of poverty and energy poverty has been both created and entrenched by the state**, trapping a large percentage of South Africans within it. If you are poor, you cannot afford to pay for the MTLC, and your inability to pay entrenches your poverty.

¹⁸ Keeping in mind that Eskom directly supplies around 50% of households.

The result is that millions of households are excluded from the very thing that would increase their living standards. Instead, they must pay more for everything because they do not have the most basic of conveniences that come from electricity, like refrigeration. They are also deprived of many economic opportunities to improve their lives because of that lack of access, no matter how hard they try or how willing they are to work.


We want to open up businesses so we can live properly since we can't find jobs but due to electricity we don't succeed. People want to sell ice cream and other things but they can't. All of this requires refrigerators. If you want a tavern just know that nobody is going to leave their coffee and come buy your alcohol because it is the same as the coffee now the tavern doesn't have a cold fridge. ... Many of our businesses are dying. Why? Because of this electricity.

MADALA, EYADINI, CAPE TOWN

I know I can't get a job but if there was electricity, I would have started a business. I would have a food business where I can cook pap and meat. I cannot do this with wood. I am very business minded. I could sell eggs, russians. I cook fish and other things but now I cannot do any of these things. Now I have to stay home and don't do anything. I have a few sheets of corrugated iron and I wanted to make a small food place. However, there is no electricity to fit into the shop I want to build.

NOLUVUYO, EYADINI, CAPE TOWN





We can save a lot of money if we had some form of working electricity. Having to buy 2kg of maize and meat every day is costly. You need to buy other food for the kids' lunchboxes every day and that is costly as well. Not having a fridge is a big problem.

ZANELE, EYADINI, CAPE TOWN

We can't follow anything that is happening around us. There could be a mall under construction where they need employees but nobody from Eyadini will apply because they wouldn't know anything about it. ... The jobs that we find are usually well past the due date, sometimes three months after. The post would say apply online immediately but that does not happen because we wouldn't know about it. Our phones are fine to find these things out, but we can't because we can't charge them. You'd be in the middle of an application and the phone would switch off.

OLWETHU, EYADINI, CAPE TOWN

Many things are done online these days. Jobs are found online as well as school applications. Even the application we need to send to the government are done online but people can't do that. I left my home at 4am the other day to go submit my application and when I got there, I was handed a form and asked to go back and apply online. How could I have known about these things if I don't have electricity?

MADALA, EYADINI, CAPE TOWN

Our youth could have applied for these census jobs and make some money while counting their neighbours, but nobody had information. Nobody from Eyadini applied for those jobs let alone get one. If we had electricity, we would know these things.

MAM NONI, PHILLIPPI, CAPE TOWN

The other day we saw new cleaners cleaning our piles of trash and we were surprised. We didn't know who they were, where they come from or when they were hired. We knew later that there were calls for applications for cleaners, but we only discovered that as the new cleaning people spoke about it.

OLWETHU, EYADINI, CAPE TOWN

I keep trying to have a business, I like business and I really want to be a businesswoman. I tried to sell fat cakes and beef trotters. We didn't have electricity, so I managed to persevere, get connected, pay the fee and the monthly rent. It failed because of all the costs that came with electricity, including the ways the power was on and off at random times. I would buy the stock for R400 and I knew how much I would make from selling all of it. But when you are starting you would never sell all of it, so you have to ask someone to store it for you. Of course, they will but they will eventually get tired of you.

NOLUVUYO, EYADINI, CAPE TOWN

Everything at home starts with us women, so we are highly affected by the lack of electricity because we have to take care of the home; to make sure that it is clean and there is food. It is not nice to see your child going to school with wrinkled clothes, or when you cannot set an alarm on your phone, so everyone gets late to work and school, or to not have a working fridge because there is no power. We usually cannot help our kids with assignments because of the bad electricity.

MATSHIDISO, EYADINI, CAPE TOWN

Collateral damage

In addition to those who are not connected to the grid, many households that have an electricity connection regularly use additional energy sources like coal and firewood, primarily for cooking. This is almost always because they cannot afford to use electricity for all their basic requirements. Indoor air pollution in many South African homes is significantly higher than in most industrial areas (where outdoor air pollution is more visible). Indoor air pollution in homes disproportionately impacts women and children and is estimated to cause around 1,400 deaths of children in South Africa each year.^{vi}

Most of our people here are domestic workers and they are paid a very little amount of money, like R1 300 per month. They have to buy food, travel and take their kids to school. There is no money left after this. ... Even if they do have electricity they use it very minimally. Some of them have the lights on and they go and cook with fires and paraffin stoves because that is cheaper.

ZANELE, EYADINI, CAPE TOWN

In a conservative estimate, around ten shack fires a day across South Africa^{vii} are caused by paraffin stoves and other unsafe energy sources. This implies that thousands of homes have been destroyed by fire over the past five years, representing an almost total loss of all possessions for the affected families overwhelmingly, poor families. Hundreds of people have died in these fires, with many more suffering serious injury.

We would have fewer deaths if we had reliable electricity. Many people wouldn't die in their shacks because of candles or paraffin stoves.

PHILIP, EYADINI, CAPE TOWN

Better to break the law than to break the poor

Tens of thousands of households have no option but to connect themselves illegally, either because they do not have a connection (such as informal settlements) or because they have been disconnected for non-payment, sometimes for years. There is a constant outcry about illegal connections from the government and Eskom, and these connections certainly exact a high cost in terms of infrastructure damage. **But the state has left people with no other option.** Those connecting themselves illegally understand well that it is not a good solution, but what do you do when the state has officially promised electricity for everyone, and then decided that you cannot have electricity because you are poor?

People don't actually want illegal connections. People want to buy electricity for themselves. Seven homes connected to a single box is dangerous and inconvenient.

ANONYMOUS, PROTEA GLEN

Yes, we don't have money but we pay for electricity with what little we have. We buy electricity here. You know why? We pay these people who connect the electricity every month. They are getting paid these people. People own the cables we use so we pay them all the time, so I'm sure that we can pay for electricity. We want electricity and we will pay for it, because we need it. It is one the things that the government has promised us; that we will get electricity, water and sanitation. These are basic human needs, so how will you live without electricity?

CHRISTOPHER, PRINCESS, JOHANNESBURG

They complain that we steal electricity, and we are ruining the infrastructure. They also say that we are endangering people because these wires are hanging everywhere. They then say that this is the reason behind us not getting the other services.

VUYANI, EYADINI, CAPE TOWN

Remember that connecting yourself was a moral and political controversy. People don't want a country where people are connecting themselves illegally and there is chaos. It was the way we did the connections and the way we communicated with the community about this. We also made the person who is being connected understand that they have the right to electricity in this country, that is better to break the law than to break the poor.

TREVOR, PIMVILLE, SOWETO

It is one of the things that the government has promised us; that we will get electricity, water and sanitation. These are basic human needs, so how will you live without electricity?

CHRISTOPHER, PRINCESS, JOHANNESBURG

Don't forget that these are the people that we voted for, so people ask themselves 'what has happened to the electricity they promised us?'. So, the people say 'fuck it, we are going to connect ourselves'.

TREVOR, PIMVILLE, SOWETO

When we speak to the councillor, he said that we must help him with the electricity problem. He asked us to identify those who have connected illegally so that he can deal with them. But we cannot do that because people are dangerous. ... He then said that if we can't help him, he cannot help us. He just didn't understand that many of these people are doing this because they are desperate and under pressure, especially when they are business people and they have stocks that need electricity.

VUYANI, EYADINI, CAPE TOWN

We won't have a reason to steal this electricity if we had something that actually works. People here are struggling and if they need electricity that the government can't provide and they cannot afford, they will steal it.

PHILLIP, EYADINI, CAPE TOWN

If a transformer or substation explodes they do not send someone to fix it. They will instead send someone to say 'this area doesn't pay electricity' and that 'each household should pay R6500'. Now you find that transformers are lying there unrepaired for months and the damage to the infrastructure gets irreversible. This policy is myopic. They are sabotaging themselves in this way.

TREVOR, PIMVILLE, SOWETO

Illegal does not mean free

There is a widespread belief that those who are illegally connected are getting electricity for free. There is nothing 'free' about an illegal connection, in monetary or other terms. Everyone with such a connection must pay for it – an upfront fee to finance the cabling and (usually) an ongoing fee to compensate either the owners of the outlet connected to, or those who maintain the connection.

People also think that we do not pay for anything, but we pay for everything.

MATSHIDISO, EYADINI, CAPE TOWN

Eskom and the government view people who connect electricity illegally not as normal people but as criminals. They only see this from a criminality perspective, as thieves. That is why they come with the police. They don't view us as just poor people who want a better life, to work and to progress. ... They have criminalised being poor. They are delegitimising our struggle and poverty by treating us like this. And within the criminalisation they are saying frankly that if you are poor, you will not get electricity.

TREVOR, PIMVILLE, SOWETO

In addition, illegal connections bring the constant threat of death by electrocution, and damage to appliances which people can seldom afford to replace. **The fact that they are prepared to accept these risks underscores the vital importance of electricity in facilitating a minimum standard of living and supporting livelihood opportunities; the very thing that the state seems not to understand.** ■

Ramaphosa has just given everyone R350 but most people used it to fix their cables, giving away the money, instead of doing something else with it. If we had electricity we wouldn't starve like we are today. ...We think we are free today but we are not. It is as though they removed a rock on top of black people and replaced it with steel.

PHILLIP, EYADINI, CAPE TOWN







CHAPTER 4

Universal enabling access to electricity must be a national development priority

We probably won't complain too much if we had electricity and some toilets. Our kids would be able to study and go to school looking as clean as other kids. We are old but we also have our 'sweetie pies' we also need to be clean and to look good. We would have a relatively pleasant life and we would be free of many problems.

MADALA, EYADINI, CAPE TOWN



Electricity is just one part of the problem facing Sowetans, poor people and the working class. People know that if they had jobs, if they were not poor, they would just pay for the electricity. So, this should be looked at in a broader context of unemployment and inequality.

TREVOR, PIMVILLE, SOWETO

The original ‘electricity for all’ promise has clearly been replaced with a ‘if you are poor, you cannot have electricity’ reality. This is astonishingly short sighted, and essentially ensures that poverty will never be addressed, since poor households are deprived of the opportunity to increase their living standards and engage in economic activities that would lift them out of poverty.

By ensuring that poor households will never be able to reach a MTLC at which development gains can be realised, the official policy entrenches inequality. Historically poor areas (such as townships) remain poor. The barrier to their access to the means of development remains as high now as it ever was.

Implementing universal enabling access to electricity may be one of the most effective strategies for South Africa to make a meaningful impact on poverty and inequality. Universal enabling access would contribute to higher standards of living and facilitate millions of economic and employment opportunities. It would also leverage, and improve the impact of, all existing policies to reduce poverty and create new livelihoods.

Electricity and food security

A most important – but largely invisible – linkage between a household’s access to sufficient electricity (i.e. the MTL) and its standard of living, is in respect of food. Food insecurity, child malnutrition and household hunger are widespread in South Africa.

- Severe child malnutrition (stunting) affects slightly more than one in four children under the age of five and has serious negative implications. Malnourished children are less likely to do well in school due to poor cognitive development, and more likely to suffer from non-communicable diseases such as diabetes and hypertension later in life. There is a proven linkage between severe childhood malnutrition and an increased propensity for violence in adulthood.¹
- Non-communicable diseases directly related to poor nutrition contribute significantly to the public health burden and to national deaths.
- Child malnutrition also places a heavy burden on women, who generally have the primary responsibility for feeding children in households.

How does access to electricity improve food security?

The most important driver of energy demand in low-income households is cooking, and there is a direct relationship between the ability to cook, and household nutrition status. Most staple foods require cooking, and more nutritious foods (such as beans and whole grains) generally require relatively long cooking times. When the household cannot afford the electricity required to cook these foods, they will often substitute with ready-made (and much less nutritious) items such as bread.

The main reason for food insecurity and malnutrition in South Africa is insufficient income to purchase enough nutritious food. Almost all households buy all their food, and thus household income available for food directly determines their nutritional status. This implies that any factor that reduces money to purchase food (such as competing demands on the household budget) will exacerbate food insecurity. The more that households pay for electricity, the less they spend on everything else, including food. In fact, data shows that households will reduce food budgets before other expenses (such as transport) because this is one of the few expenditures they can control (unlike, say, taxi fares or rent).

Research¹⁹ conducted in South Africa suggests that both these impacts are significant in millions of households: that households are eating less nutritious diets because they cannot afford sufficient electricity to cook better options, and that they are diverting food expenditure to pay for electricity.

This mother is unemployed. This household depends solely on the Child Support Grant; without the CSG, this household would be destitute. Because of the additional costs of cooking fuel and to conserve the limited electricity she can afford, this mother limits the number of times she cooks a meal, relying on snacks like fat cakes and flyers (soft packet popcorn) to feed her daughter during the day.

CHILDREN, SOCIAL ASSISTANCE AND FOOD SECURITY (2022)

¹⁹ The most recent of which in South Africa is that commissioned by the Black Sash. See Black Sash, 2021.

What would universal enabling access to electricity look like if it was achieved? That is, what should we be aiming for to maximise the impact and spread of the developmental benefits of electricity?

MTLC

Universal enabling access to electricity

=

all users have access to a **quality** and **reliable minimum threshold level** of consumption

Each of the following factors must be in place to ensure universal enabling access. Any policy that aims to achieve enabling access - the kind of access to electricity that will facilitate broad-based socioeconomic development – must focus on delivering all three:

- Physical access via a formal connection
- Quality and reliable supply
- Affordability of the MTLC

Physical access in South Africa is already being addressed via the National Electrification Programme – even so, it needs to be accelerated in urban informal areas.

Nationally, quality and reliable supply is being partly addressed through plans to bring new generation capacity online, although this is proceeding too slowly. The state of municipal electricity distribution infrastructure is also an important contributor to poor quality and reliability of supply, but it gets less attention than generation constraints. Many municipalities are either not collecting sufficient revenue to pay for adequate maintenance or are not prioritising this expenditure. While this issue undoubtedly poses long-term threats to the universal enabling access goal and thus requires attention, this book does not focus on it.

Instead, **the focus is to examine in detail what constitutes the third component of universal enabling access – affordability of the MTLC.** This emphasis is justified in that (i) this presents the most significant obstacle to achieving universal enabling access, and (ii) it has received almost no official attention to date. This book makes a first attempt to fill that gap: **what is a meaningful MTLC, and how should we measure and benchmark the affordability of that MTLC?**

What is a meaningful MTLC?

Firstly, the MTLC is the minimum amount of electricity required to ensure that access translates into sustainable socioeconomic development. The concept of the MTLC acknowledges that, in order to break out of poverty, poor households (and small enterprises) usually require access to (significantly) more electricity than they currently use.

The key question is: What is the MTLC (expressed in kWh per user²⁰ per month) that will improve living standards, create economic opportunities, and reduce poverty and inequality in South Africa? That is, what is the MTLC at which the benefits of universal access to energy will materialise?

To answer with any reasonable accuracy requires detailed and context/location-specific empirical study of actual requirements.²¹ A small number of such studies have been undertaken in South Africa, with two main limitations:

1. The studies have considered the amount of electricity required to support a basic standard of living (including a modest amount of electricity for limited cooking) in a household. But they have failed to consider the amount of electricity needed by those households to engage in new small-scale economic activity, or to increase existing economic activity.
2. To date, no studies have looked specifically at the MTLC that would be appropriate for small farmers and microenterprises.

There are thus significant empirical data gaps. But what can we say about the MTLC for households, based on what we *know*?

Studies undertaken by EarthLife Africaⁱⁱ and a group of energy researchersⁱⁱⁱ both came to the conclusion that the absolute minimum level of electricity to support a basic standard of living for a household was 200kWh per month. Although each study took a different approach and emphasized different energy needs, they agreed that 200kWh was a much more realistic estimate of basic household needs than the current 50kWh allocation in the FBE.

Additionally, Sustainable Energy Africa^{iv} estimates that the FBE allowance only makes up about 25% to 30% of actual usage in very poor households. This suggests that actual household usage is around 150kWh to 200kWh per month, close to the estimates of basic needs made by other studies.

20 For the purposes of this analysis, a 'user' is defined as a household or a business enterprise.

21 The MTLC will be different in different countries, regions and local socio-economic contexts. There is no 'universal' standard.

However, this does not imply that the MTLC for South African households is 200kWh per month. The MTLC is the amount of electricity that will catalyse sustainable socioeconomic development, not one that only meets a household's most basic needs. Sustainable Energy Africa's research concluded that the surveyed households' actual usage (150 – 200kWh per month) was *not* high enough to support a general move out of poverty. We should, therefore, correctly see the amount of electricity consumed by these households as the *absolute minimum* that they require, since every Rand spent on electricity is a Rand not spent on food, and electricity usage is very carefully controlled for this reason. Similarly, the other studies referred to were examining electricity requirements for minimum living requirements, not the MTLC sufficient to support a sustainable escape from poverty.

The Pietermaritzburg Economic Justice and Dignity group (PMBEJD) collects detailed data on expenditure on food and basic necessities in poor households,⁹ including electricity. Their data suggests that households with one person working full-time at the national minimum wage (i.e., not the very poorest households) purchase an average of 350kWh of electricity each month.

It seems likely, therefore, that the MTLC at which households could leverage meaningful socioeconomic benefits from electricity is *higher* than 200kWh per month, and probably closer to 350kWh per month. This does not specifically include an allowance for small business activity, but only household requirements such as cooking, lighting and limited water heating.

In respect of the MTLC for small farmers and small enterprises, this is a knowledge gap that needs to be filled urgently. This is a very diverse group of electricity users, unlikely to have an average requirement. However, detailed knowledge about electricity demands by these users is needed to inform any relevant policy making. Once such information is available, an affordability assessment for these users can be undertaken.²²

At what cost is the MTLC affordable?

The next critical issue to be addressed to achieve universal enabling access is the *affordability* of the MTLC i.e., the suggested 350kWh per household per month. The studies referred to above have focused on the *amount* of electricity required by households, but they provide no answers to this vital question: at what cost would the MTLC be affordable enough for the user in question to consistently access it?

22 Over the next two years, empirical work in respect of the MTLC for small enterprises and small farmers (as well as additional work in respect of households) will be a focus of PARI's Energy and Society Programme.

The current cost of 350kWh of electricity for a household varies enormously across South Africa and is influenced by (at least) the following factors:

- Whether the household is supplied electricity by Eskom or by their local municipality.
- Whether the household has a prepaid meter or an account with the municipality. In general, the per kWh rate for prepaid meters is higher than on an account, but account-holders must pay fixed charges before purchasing units. This disadvantages poorer households that use less electricity.

A recent study^{vi} looked at how much electricity could be purchased in different large metropolitan area for R1,000 per month, for the year ending 30 June 2022. The range was vast: the smallest amount was 93kWh on a City of Joburg residential account, while the largest amount was 548kWh – on both the Eskom Homelight package, and the Ekurhuleni Tariff A prepaid package. This wide range not only complicates a universally applicable affordability assessment; it also highlights the considerable spatial inequality generated by the current electricity pricing model.

Poor households unlucky enough to live in a municipality with relatively high electricity tariffs are required to divert more of their limited household income away from basics such as food than those who live in municipalities with lower tariffs. In this way, the current tariff model is exacerbating inequality. This is a far cry from the original policy intention – that the provision of basic services would be a key tool to reduce inequality.

However, for the purposes of a general discussion on affordability of electricity, a conservative approach (erring on the side of understating the cost) proceeds on the assumption that 350kWh of electricity costs R650 per month. How affordable is this cost for a South African household?

To answer this question, we need a clear approach and benchmarks for measurement that can inform policy. Additionally, the most appropriate approach (and benchmarks) should reflect both the demographic context (the reality within which households are living) and overarching socioeconomic development goals. In this way, the determination and measurement of affordability will be well aligned with the wider policy goals that universal access to energy is intended to support. If we fail to consider that overarching context (and it will be different in every country), our final universal access to energy plan will not likely deliver such alignment.

We have given ourselves 100 days to finalise a comprehensive social compact to grow our economy, create jobs and combat hunger.

PRESIDENT CYRIL RAMAPHOSA, 10 FEBRUARY 2022



Starving to keep the lights on

In the South African context, the following issues are the most relevant:

- There is an overarching policy goal to increase living standards, reduce poverty, reduce food insecurity and create new employment opportunities. This implies that energy policy must ensure that access to electricity **directly contributes to these goals**.
- Poverty levels are extremely high. Approximately 25% of all households (some 4.3 million households) live below the food poverty line i.e., a total household income of R2,496²³ or less per month in 2021. This means the entire household income is not sufficient to purchase a minimum-nutrition basket of food each month. Another 30% of households (5.1 million households) live above the food poverty line, but below the upper-bound poverty line i.e., a total household income of R5,340²⁴ or less per month for a family of four in 2021.
- Basic food (calorie) requirements per person are officially estimated to cost R624 per month (at 2021 prices), implying a basic food expenditure of R2,496 required each month for a family of four. This is not, however, sufficient money to ensure a minimum level of *nutrition* (particularly for children, who require a minimum protein intake for physical and cognitive development). PMBEJD has estimated that the 2021 cost of a (very basic) nutritious basket of food for a household of two children and two adults is closer to R2,837.70 per month.^{vii} Conservatively estimated, between 4.5 and 5 million South African households have a total household income *below* this 'nutrition poverty' level.

The best approach to affordability:

- will maximise households' ability to consistently access the full MTLC (all the power, all the time), thereby creating and maintaining significant development benefits; and
- will not undermine existing priorities of poverty reduction in general, and food security in particular.

Sometimes it gets so bad that I could not even afford R10 units (of electricity). This always forces me to choose not to cook certain food just so my children can warm water when they go to school and have lights in the evening.

RESIDENT OF MAUTSE, FREE STATE

²³ Approximately USD166.

²⁴ Approximately USD356.

In one case study, a mother of a four-year-old child had no other source of income besides a single R450 Child Support Grant a month. This caregiver shared about the daily struggle of attempting to meet the needs of her child through this small amount of money. Often, she had to make trade-offs between buying food or electricity.

CHILDREN, SOCIAL ASSISTANCE AND FOOD SECURITY (2022)

When a household has a total income at or below the amount required to purchase the minimum basket of nutritious food, that household can only purchase electricity by cutting food purchases. The reality is that millions of South African households are sacrificing nutrition for electricity every single day.

“To buy electricity, I just cut out certain (food) items so that we have money to purchase it.”

CHILDREN, SOCIAL ASSISTANCE AND FOOD SECURITY (2022)

The fact that so many poor households are finding a way to pay for electricity (even illegal connections are never free) should not be taken as proof that these payments are affordable. Entrenching the sacrifices that people make to access electricity is not in anyone’s long-term interests; not the individual household, not wider society, not the national economy.

What are the best options for an effective affordability policy?

South Africa's current approach to affordability can be inferred²⁵ as **a split between free units and paid units**: the 50kWh per month FBE is supposed to meet minimum household requirements, and stepped tariffs²⁶ are intended to result in lower prices for those who use smaller amounts via a cross-subsidy from wealthier to less-wealthy users. The main gap in this current approach is that it does not take explicit account of the critical notion of a MTLC. That is, there is no clear linkage between the minimum amount of electricity required to leverage development, and the affordability **of that amount**. There are also problems with the implementation of the FBE policy (as many as 7 million households that are funded in the national budget for this purpose are not receiving the FBE units),^{viii} and even the lowest electricity tariffs have increased far above inflation in the past 10 years. Despite these issues, the *principle* – that affordability can be effectively addressed through a mix of free and subsidised units – is a sound one.

The critical policy question then is **where to draw the line between the free units and the paid units so that households can access the MTLC**. That is, how much of the estimated household MTLC of 350kWh per month should be provided free, how much should be paid for, and what should the cost of the paid portion be. The current situation is that a relatively small number of poor households get 50kWh for free and must pay for the rest, while the majority of poor households get no free units and so must pay for all their usage. Further, current tariff-setting policy takes no explicit account of the ability of poor households to pay.

The free-units-vs-paid-units question requires that we have a clear benchmark for what is 'affordable' for a household to spend on electricity each month, and how much of the 350kWh can be purchased with that amount. The balance (i.e. 350kWh minus the affordable units) should then be the free portion.

Globally, the most commonly used approach to energy affordability considers the relationship between energy expenditure and household income. The generally utilised benchmark is that if a household is spending more than 10% of its income on energy, that should be considered unaffordable. Conversely, it is considered affordable if the household is spending less than 10% of its income on energy. The World Bank has further suggested that poor households that spend more than 5% of their income on energy are in danger of losing access.

25 'Inferred' because nowhere is this explicitly stated to be the official 'affordability' policy.

26 That is, the price per unit increases as more is consumed.

If we applied that 10% of income approach in the South African context, it would mean the following:

- For households living below the food poverty line, a maximum monthly expenditure of R249 per month (10% of the food poverty line) would be considered affordable (declining as household income declines below that poverty line); and
- For households living above the food poverty line, but below the upper bound poverty line, an electricity expenditure of between R249 and R533 per month (10% of the upper-bound poverty line) would be considered affordable.

That affordability calculation would then determine the following split between free and paid units (using our assumption that 350kWh cost R650 per month):

- Households below the food poverty line should receive a minimum of 216 free kWh per month,²⁷ and a maximum of R249 in own payments.
- For the households above the food poverty line, but below the upper-bound line, the implication would be a minimum of 63 free kWh per month, and a maximum of R533 in own payments.

The actual split between free and paid units would depend on each individual household's actual income: the lower the income, the greater the number of free units.

This may look like a neat solution to our affordability problem, and a good approach towards enabling access. In fact, it fails to address the most critical criteria of universal enabling access – that an affordability approach must

- maximise households' ability to access the MTLC; and
- not undermine existing priorities in respect of poverty reduction in general, and food security in particular.

To meet both these requirements – and for access to electricity to be a genuine facilitator of development - **expenditure on electricity must not erode household expenditure needed for other critical poverty-reduction expenditure, most notably food.** If households are accessing electricity (a positive input for socioeconomic development) while reducing their food expenditure (a negative impact for socioeconomic development) the overall development impact is, at best, neutral. This is not a path to progress.

These two requirements of universal enabling access are related via household income: firstly, if the household has other (non-electricity) pressing demands on income such as food, they will not be able to make the full own payment without making unacceptable cuts from other categories of expenditure. This means that they will most likely consume less electricity than the MTLC, which means that the affordability policy will have failed to actually

²⁷ The further below the poverty line the household is, the greater the allocation of free units and the smaller the own payment.

deliver enabling access, and all the associated benefits. This ‘compression of energy needs’ outcome has been noted in countries with much lower levels of household poverty than South Africa.^{ix}

Secondly, if the household is already food insecure, and must divert expenditure from food to fund the own-payment portion (in part or in full), then the policy’s effective impact is to worsen food insecurity. For the poorest households, *no* amount of energy expenditure (even if it falls below the 10% of income threshold) should be considered affordable, since it is exacerbating food insecurity. This is the complete opposite outcome of policy intentions in respect of poverty reduction.

For the 4.3 million households living below the food poverty line, one or both of these outcomes (increased food insecurity and electricity consumption below the MTLC) is guaranteed. For the 5.1 million households living above the food poverty line, but below the upper-bound poverty line, at least one of these outcomes is highly likely.

Paying for that electricity is also a problem when other things are concerned. If someone is employed and is earning peanuts, the municipality would say that person must pay for electricity. They think you have money even if you earn R3500, minimum wage, but this is not enough to support yourself and a family. ... You lose the opportunity to do something else important, like adding an extra backroom to increase the space for your family or making sure that you have food at the end of the month because food is expensive.

SIPHIWE, THEMBELIHLE, JOHANNESBURG

For these reasons, the percentage-of-household income approach to determining affordability is not appropriate in the South African context, nor is its application likely to support attaining the goal of universal enabling access.

What are the alternatives?

What kind of affordability approach – to determining the free versus paid units split – would be well aligned with the goal of achieving universal enabling access *and* existing socioeconomic development priorities? The best approach will maximise the likelihood that a household actually accesses at least 350kWh per month and will not exacerbate household poverty. We have developed such an approach – the **Food First Approach**.

The Food First Approach to electricity access

The Food First Approach is an approach to determining the affordability of electricity based on the premise that household nutritional status lies at the heart of poverty, and of poverty reduction. There are enormous benefits – for individuals and for wider society and economy – to improving household nutrition. The biggest factor that determines nutritional status is household disposable income. When a household diverts expenditure from food to pay for a portion of the MTLC – no matter how small the Rand amount – that electricity expenditure should be considered unaffordable.

In South Africa, household food security is a national priority. Given the linkages between money available for food and food insecurity, **all development policies (including policy on access to electricity) must avoid undermining household food expenditure.**

What does the Food First Approach imply for electricity affordability, and specifically the question of where to draw the line between free units and paid units regarding the 350kWh per month MTLC?

- For all households living below the food poverty line (some 4.3 million) the entire 350kWh per month should be provided as free units, and no other charges for electricity provision (such as network charges etc.) in respect of those 350kWh should be levied. That is, these households must access the 350kWh each month at zero cost. To reiterate: even a tiny fee will divert from food expenditure in a household that does not have enough money for food.

Additionally, this consolidated approach towards the poorest households avoids the considerable administrative costs of attempting a split between free and paid units within this group. These administrative costs are likely to approximate or even exceed the cost of simply providing free units.

- Households living above the food poverty line, but below the upper-bound poverty line²⁸ (some 5.1 million households) could probably afford to pay something towards the 350kWh MTLC, but what should that ‘something’ be?

²⁸ Above R2,496 per month and below R5,340 per month total household income for a family of four at 2021 prices – some 5.1 million households.

This group of households have total monthly income ranging between R2,497 and R5,340. Considering the PMBEJD calculation that a minimum nutrition basket of food for a family of four costs R2,837 per month, that would leave a household in this category with between R0 and R2,503 to pay for all other monthly expenses after food purchases. If a household with the highest monthly income in this group then spent R533 on electricity (as per the 10% affordability threshold and the free units/own payment split set out above) that would imply that **20% of total income left over after basic nutrition food purchases** would be required to fund the MTLC.

Under most circumstances, these households could not actually allocate that amount of money to electricity: their total *maximum* disposable income of R2,503 per month after food is needed to pay for accommodation, transport, school-related expenses for children and other basic services like water.²⁹ And millions of households in this category have considerably less disposable income available after food purchases.

The only way to ensure that these households actually access the 350kWh per month is to provide it for free. Though it might be tempting to take the 'people should pay something, even if it is only a small amount' approach, the administration costs to enforce this would almost certainly outweigh the amount that could be collected as electricity revenue, while simultaneously exacerbating household poverty. It would be a wasteful and counterproductive use of public resources.

While there are certainly some households within this group that could afford to spend a small amount of money on electricity monthly without too serious an impact on food security, such households would then be able to use that money to purchase additional units of electricity, over and above the 350kWh. **This is a good thing:** it means they can access electricity to support small-scale economic activity, over and above their basic household requirements. In other words, this would support the desired outcome that more South Africans can take advantage of economic opportunities, create employment and increase their disposable income.

In summary, there is a compelling argument to be made that it is in the best interests of South Africa's long-term socioeconomic development policies that all households that live below the upper-bound poverty line (55% of households) get 350kWh of free electricity every month. ■

²⁹ Notionally, there is also a free basic water subsidy in place, BUT it only benefits a relatively small group of households and the allowance is insufficient for many of these.

In millions of South African households, **electricity is competing with food** for a share of income.



Whichever wins, the household loses – either they have less electricity (and thus fewer opportunities to improve their standard of living), or they have less food.



This trade-off is not a path to progress.



CHAPTER 5

Power to the people: A roadmap to electricity for all

Access to electricity is fundamental to opportunity in this age. It's the light that children study by; the energy that allows an idea to be transformed into a real business. It's the lifeline for families to meet their most basic needs. And it's the connection that's needed to plug Africa into the grid of the global economy. You've got to have power.

BARACK OBAMA (2013)

We would forgive the government for treating us this way if they at least provide us with water, electricity and toilets.

MKABANI, EYADINI, CAPE TOWN

‘We are not criminals and we don’t want them to see it like that. We are just people who need help’.

MADALA, EYADINI, CAPE TOWN

You spoke about how we afford electricity but I have to say that the question is irrelevant here because the electricity we have is not free; we are paying for it already. We would buy it if we could, but that is not the reality. The people you need to speak with are our landlords who are constantly demanding R300. These people are not even paying for their electricity but they get their income from us.

LUNGILE, EYADINI, CAPE TOWN

We are firmly convinced that ending energy poverty, in broad alignment with United Nations Sustainable Development #7, which calls for universal access to affordable, reliable sustainable and modern energy by 2030, is the necessary prerequisite to eradicating poverty itself.

GLOBAL COMMISSION TO END ENERGY POVERTY

Electricity is the key to reduce poverty and inequality

Electricity is the great enabler of socioeconomic transformation. Universal enabling access to electricity may be the single most important strategy whereby South Africa could significantly improve living standards, reduce food insecurity, create large numbers of new economic opportunities and support small business development.

South Africa aims to be a developmental state, which the National Development Plan defines as one that builds the capabilities of people to improve their own lives, while intervening to correct historical inequalities. Electricity is the essential factor that builds the capabilities of people to improve their own lives:

- Electricity creates opportunities to engage in new economic opportunities, and increases the productivity (and returns) of existing economic activities.
- Electricity supports improvements in standards of living and health, and contributes to better household food security and the nutritional status of children.

The ability of all South Africans to use electricity in pursuit of these goals would make every other state development programme – from social grants to small business support – more effective. Universal access to electricity will increase the impact (and thus the value for money spent) of almost every part of the state’s development agenda.

But electricity can only be that catalyst of transformation if we change two serious policy problems:

1. The belief that physical electrification (the national electrification programme) is the only factor needed to support the capabilities of people to use electricity to improve their own lives. Electrification is necessary, but far from sufficient to generate that outcome. It is only the first step. It is a largely ineffective first step if the most important barrier to universal enabling access – cost – is not addressed.

2. The way in which access to electricity for poor households is seen by the state. What must change is the perception that this is a form of charity; some variation on a social grant that is nothing but a cost for the state. This erroneous thinking leads to the conclusion that electricity subsidies for poor households should therefore be kept as small as possible – like the tiny amount currently allocated as a free allowance. Instead, sufficient electricity for everyone must be viewed for what it actually is: a critical investment in future prosperity, as a priority development strategy that will benefit all of us. The more we invest – and the more electricity poor households consume - the greater the social returns will be.

Ensuring that everyone can use electricity to improve their lives – the goal of universal enabling access – must be a national priority. This is a critical state responsibility, as part of its commitment to **correct historical inequalities**.

The concept of **universal enabling access** goes far beyond current (physical electrification) measures of access; it alerts us that there is a minimum level of electricity use (the Minimum Threshold Level of Consumption – MTLC) which is necessary to generate socioeconomic development benefits. Consumption below this level does not create significant or sustainable benefits, nor does it leverage the full potential of investment made in physical electrification infrastructure. It merely creates the false impression that access has been achieved.

Electricity **only** becomes a truly transformative national asset when everyone is able to access the MTLC.

**UNIVERSAL ENABLING ACCESS = EVERYONE CAN ACCESS THE MTLC,³⁰
ALL THE TIME**

³⁰ Which we estimate in South Africa is 350kWh per household per month.

When the overarching goal is universal enabling access, effective policy³¹ must focus on removing the barriers that prevent its achievement. These barriers are:

- Physical access to electricity infrastructure that delivers quality and reliable electricity; and
- The ability to pay for the MTLC (its affordability for all users)

The good news is that South Africa already has an advantage: unlike many other developing countries, we have most of the basic infrastructure foundation in place to achieve universal enabling access. Tens of billions of rands have been spent on extending electricity infrastructure³² over the past 30 years. We are in the privileged position where 86% of South African households could be using electricity to improve every part of their lives, because they are connected to the grid.

But physical infrastructure is only the first barrier to achieving universal enabling access. What happens in the decades after building that infrastructure determines whether the investment is leveraged into significant socioeconomic development, or whether it becomes an expensive lost opportunity.

The bad news is that South Africa has done very little to build on this infrastructure advantage. We have not come anywhere near universal enabling access because we have neglected to develop and implement strategies to remove the cost (affordability) barrier. All research into access to electricity presents one clear conclusion: that the majority of South African households³³ are unable to access the amount of electricity that they need to significantly and sustainably improve their lives. Why? Because they cannot afford to pay for it.

We have created a situation where the money poured into physical infrastructure looks far more like an expensive missed opportunity than a long-term strategic investment. This is South Africa's choice and it isn't a good one.

In the past, the politics of apartheid prevented millions of South Africans from accessing the benefits of electricity; from using electricity to build their capabilities to improve their lives. Today, the politics of 'the user must pay (even if they cannot afford to)' has a very similar impact, by effectively excluding the poor.

31 That is, policy that is most likely to actually achieve this goal.

32 Although the maintenance of that infrastructure needs serious attention.

33 And, we can reasonably assume, thousands of micro enterprises and small farmers..

The fight is a political one, between the haves and the have nots. They use tactics such as saying that ‘not everyone is poor in Soweto’, and that ‘we have an indigent policy’ to apply for if you are poor. But the thrust of their political approach is to say the poor don’t deserve better.

TREVOR, PIMVILLE, SOWETO

The current model of electricity provision – which views electricity primarily as a service to be paid for, rather than a driver of socioeconomic development – is at odds with all our development goals.

The official insistence that you cannot access electricity if you can’t pay very effectively discriminates against exactly those South Africans that the post-apartheid state promised to do the most for – the poor in general, and poor black women in particular.

- The poorer you are, the more you will benefit from enabling access to electricity. But the poorer you are, the less likely you are to be able to access that electricity, because of the cost.
- In millions of South African households, electricity is competing with food for a share of income. Whichever wins, the household loses – either they have less electricity (and thus fewer opportunities to improve their standard of living), or they have less food. This trade-off is not a path to progress.
- Black female-headed households are the most vulnerable to energy povertyⁱ and thus, current energy policies exacerbate gender inequalities in particular, as well as inequality in general.

We could draw parallels between an electricity provision system and an education system: it is generally accepted that universal quality education and skills development is critical to support long-term economic growth and development. There are benefits for all of us if everyone has the opportunity to increase their capabilities through learning new skills. On that basis, governments allocate funds towards subsidising education and training. In many countries, education – at all levels – is provided free by the state for exactly this reason.

Most people would not think it a good idea to prevent more than half of the population from accessing education because they cannot afford it, on the argument that ‘you can’t get something for free’. This would be extremely short-sighted, and ultimately not in our collective best interests. And yet this is exactly the approach that we have taken with the provision of electricity – a development input just as important as education.

No one wins under the current system

This model fails the majority of South African households and small enterprises. It is also bad news for every other major participant in the electricity distribution sector, with far-reaching and serious consequences for our development goals.

It is clear³⁴ that the millions of poor households that can barely afford to feed themselves are unable to pay for the basic services that they need from local government. Under the local government fiscal model, electricity sales are intended to be the biggest source of funding for operating expenditure. The inability of millions of households to pay thus directly impacts municipal financial viability.

National Treasury estimates³⁵ that 87% of municipalities meet one or more of the conditions of 'serious financial problems' in terms of the Municipal Financial Management Act.ⁱⁱ This is, in large part, due to significant and growing non-payment of municipal accounts. As at December 2021, **total debt owed to local government in respect of unpaid accounts amounted to just over R261 billion**, and almost R16 billion had been written off in bad debts over the previous 6 months.ⁱⁱⁱ To put it in context, total operating expenditure for the entire local government for the 2021/22 year is estimated at R452 billion (that is, outstanding debt owed to local government equals nearly 60% of its aggregate annual operating budget).

Most of the debt, 84%, has been outstanding for more than 90 days, and 70% of the total debt is owed by households.³⁶ Despite the headlines telling us about how much money is owed to municipalities in respect of electricity, it only makes up 12% of the total outstanding debt. Much more is owed in respect of water (30% of the total) and rates and taxes (21%). This is because of two factors: the rapid rise of prepaid electricity meters (which means you cannot owe the service provider) and the fact that Eskom, and not a municipality, directly supplies around half of all households. Eskom itself is owed billions in unpaid accounts by directly-supplied households.

There is a clear linkage, however, between payment for electricity and payment for other municipal services: poor households with limited amounts of income to be allocated among multiple competing ends cannot defer electricity payments on a prepaid system, but can use deferment of other payments (such as water) as a survival mechanism.

Outstanding debt makes it more difficult for municipalities to pay all of their bulk suppliers – both water and electricity. Current estimates are that they owe Eskom some R35 billion, and water boards around R14 billion.

34 Except, possibly, to the policymakers who have created this disaster-in-waiting but refuse to acknowledge its impact.

35 As at December 2021, but this merely represents a further deterioration in a long downward trend.

36 The balance is owed by commercial enterprises and other parts of the state.

The unaffordability of essential household electricity directly impacts the financial viability of municipal water provision, of local government in general, and of Eskom – since municipalities do not have sufficient income to pay their own accounts with the national utility.

This is an unviable approach to building a developmental state. The bottom line is that no matter how much the state threatens poor households that refuse to starve themselves and their children to pay for the basic services that same state has repeatedly promised to deliver, **they cannot pay what they do not have.**

In addition, municipalities spend money every year on trying to collect outstanding debt, largely without significant results. These administrative costs further reduce the funds available for the provision of basic services, and further erode the financial integrity of local government.

There is more bad news: illegal connections are associated with a range of costs – either through lost revenue or through damage to infrastructure. There is no universally-agreed figure for these costs, but they are likely to be substantial. Just one metro – City of Tshwane – estimates that it loses about R470 million in revenue each year as a result of illegal connections.^{iv} Eskom says that the cost of illegal connections, including damage to infrastructure, costs it R700 million a year in the Western Cape alone.^v

Our current approach to electricity provision benefits almost no one: it keeps millions trapped in poverty, keeps local government stuck in a cycle of financial distress, and imposes significant costs on Eskom that it certainly cannot afford.³⁷

It has to change.

I am both father and mother of the house. Electricity could help me do what I need to do. I could cook until late and I could make some money. That is impossible now.

ZONDEKA, PROTEA SOUTH, JOHANNESBURG

³⁷ Eskom's funding gap is paid from national budget allocations – further reducing the funds available for multiple other development priority needs.



GREAT WESTERN COOLERS



A developmental model of electricity provision

We need an electricity provision model that is genuinely developmental in nature, not one that actively erodes all possibility of equitable development. We need a model that reflects South African reality, not some fantasy world where the only obstacle to electricity access (and municipal financial viability) is the 'willingness' of desperately poor households to pay.

To achieve universal enabling access, we must remove the cost barrier to accessing the MTLC. We need an electricity access policy that will achieve the following:

- Maximise the likelihood that every user can consistently access the MTLC (350kWh per household per month); and
- Ensure that universal enabling access supports, rather than undermines, other development priorities such as food security. That is, universal enabling access cannot be achieved at the expense of these other development goals.

Current policy towards electricity access appears to have been designed to achieve exactly the opposite; to ensure that South Africa never reaches the goal of universal enabling access.

How do we change direction and get onto the right path?

The key to universal enabling access is to ensure that every household can access a minimum amount of 350kWh of electricity every month. Apart from a reliable physical connection to the grid, that goal will only be achieved if the cost of that 350kWh is genuinely affordable for every household.

An affordability policy that will work for everyone

The current policy approach towards affordable access for low-income households is a split between free units and paid units. In theory, this is an approach that is compatible with the goal of universal enabling access, but the critical success factors are (1) where the line between free and paid units is drawn, and (2) the cost of the paid units.

In an effective policy – one that will advance us towards universal enabling access – the most important factor that determines both the split between free and paid units, and the cost of paid units is what households can afford to pay. In other words, what households can actually afford to pay, not what policymakers think they should be able to afford.

The way in which electricity access policy is currently being implemented in South Africa is missing both of the critical success factors set out above:

The allocation of free units (50kWh per month) only represents about 14% of the MTLC, and two thirds of poor households³⁸ do not receive this allocation at all. This means that most households must pay the entire cost of the MTLC (which we have conservatively estimated at R650 per month) out of their own pockets if they want access.

³⁸ That is, the 9.4 million households that live below the upper-bound poverty line.

That amount of money – R650 per month – is not ‘affordable’ for most households that have a total income of R5,500 or less per month.³⁹ Some 9 million households, more than 50% of South Africa’s total, fall into this group. As a result, they consume electricity at levels below the MTLC, and have to divert money from other critical expenditure (such as food) to pay for it. Both of these outcomes deepen poverty and inequality.

What does genuinely affordable electricity look like? Not surprisingly, there is no universal agreement on the matter, but we propose that any electricity affordability policy that aims to deliver universal enabling access must achieve the following:

It must maximize the likelihood that households will consistently access the MTLC. This implies that the question of affordability should reflect the economic reality of the households in question and the competing demands on their income.

It must not erode other critical development objectives. No amount of expenditure – no matter how small – is affordable if it diverts expenditure from household food requirements, which we further define as a level of food consumption that meets minimum nutrition standards,⁴⁰ because that will undermine the development goal of reducing food insecurity.

Our Food First Approach to electricity affordability aims to achieve exactly these two goals – consistent access to the MTLC, and protecting household food expenditure. The Food First Approach is intentionally designed to prevent placing poor households in the dreadful position of having to choose between electricity and food.

What does the Food First Approach imply for how we should design an electricity provision policy that will advance the goal of universal enabling access? Specifically, what does it imply about where we should draw the line between free units and paid units (within the 350kWh per month assumed MTLC) for the approximately 9 million households that live below the upper-bound poverty line? What does it imply for how we should set tariffs for consumption above the 350kWh for these households – what should poor households pay for consumption above the MTLC?

Starting with the second question: We need a tariff-setting process based on the clear understanding (and policy prioritisation) that consumption above the MTLC⁴¹ is desirable, that it will further support productive economic activity and higher standards of living. This pro-development approach is very different from the current one, which appears to prioritise optimising electricity revenue over every other goal, and consequently severely limits poor households’ consumption.

39 A rough estimate of the current (2022 prices) level of the upper-bound poverty line for a household of four.

40 That is, we cannot conclude that electricity is affordable if the household is not actually starving because it has diverted food expenditure to electricity, but is consuming a very low nutrition diet. The reason is because most of the negative socioeconomic impact of food insecurity results from inadequate nutrition (particularly in women and children) rather than outright starvation.

41 Obviously there is a point at which excessive electricity consumption is undesirable, but even if a poor household of four consumes double the MTLC each month they would still be using far less per capita than wealthy households.

In addition, tariff setting processes for end users (which will determine the tariffs for consumption above the free unit threshold) must be adjusted from the current approach to include two important factors:

The actual cost paid: current legislation allows municipalities to add on extra charges over and above the annual energy regulator (NERSA) approved tariffs. These costs vary enormously from one place to the next, and the effective outcome is that there is no comprehensive oversight over electricity tariff setting. Without such oversight there is no guarantee that tariff setting will advance the goal of universal enabling access.

Whether or not the final tariff can be objectively assessed as both affordable and compatible with (rather than undermining) national development goals. There are, of course, multiple competing ends that must be balanced against each other in this process,⁴² but under the current process most of these trade-offs are either unclear or invisible.

And now to the first question – where should we draw the line between free units and paid units in the provision of the MTLC of 350kWh per household per month? Given the South African context of high poverty and high food insecurity, the only effective affordability policy that will set us firmly on the path to achieving the goal of universal enabling access to electricity is if all households living below the upper-bound poverty line receive the entire MTLC as free units.

In order for South Africa to make real progress towards the goal of universal enabling access to electricity (and achieve the major part of SDG 7), 9 million households must receive 350kWh of free electricity each month.

Implementing such a policy, of course, has implications – for national electricity demand and for the national budget. What are these implications and costs, and are they both possible to accommodate and worth the money?

The impact of more free electricity on the current electricity supply system

South Africa currently faces an extremely constrained electricity supply, resulting in regular periods of load shedding. In this context, one of the immediate points of opposition to the proposed free electricity policy is that it will put so much extra demand pressure on the system that it will not cope.

The proposed level of free electricity represents a significant increase from the current allocation of 50kWh per household per month (and a much larger group of beneficiaries than current actually receive the benefit). It translates into just under 37.8 million MWh of free electricity provision every year. Will this put significant additional strain on our already severely constrained electricity supply?

⁴² Such as that between the financial viability of Eskom and the impact on household disposable income.

Although any additional electricity demand is problematic under current circumstances, the answer is *no*. This is because only a small part of that total (we could estimate around one third – some 12.5 million MWh) would be additional aggregate⁴³ demand; that is, over and above what is currently being consumed (and being paid for). This represents only about 6% of current national electricity production⁴⁴ and thus only a tiny part of the national demand that needs to be met by bringing new renewable generation capacity online.

Rather than constrained supply being presented as a reason not to implement a greatly expanded free electricity policy, the strong development case for the expanded policy should add urgency to the need to address South Africa's electricity supply constraints by bringing new renewable generation capacity online as quickly as possible.

Fiscal implications: how much will universal enabling access cost?

Of much greater concern to many people will be the cost of the proposed free electricity programme, and the source of the funding. Where should the money come from, what will it cost, and can the country afford the expense?

We propose that the funds should come from the annual national budget, just as the current funding of all the free basic services does.⁴⁵ However, the problematic implementation and allocation of free basic services funding by municipalities^{vi} must be addressed to ensure that the intended beneficiaries actually benefit.

There are a number of options that could be explored, such as changing the discretionary nature of the current transfer to a conditional grant, or through some other transfer mechanism that bypasses municipalities. For example,

43 With considerable variations across the 9 million households: for the poorest households, the additional consumption would be considerably larger.

44 Based on annual production of 200TWh.

45 Which makes up part of the annual equitable share of nationally raised revenue that is transferred to local government.





given how many of the target households receive their electricity from Eskom, it might make better sense to transfer funding directly to Eskom, rather than incurring the additional administration costs of going via a local municipality. No matter the distribution mechanism, the only possible source of funding is the national budget – there is certainly no fiscal space for local municipalities (or Eskom) to absorb this cost.

How much will it cost to provide 37.8 million MWh of free electricity every year? Using the electricity cost determined by National Treasury in the most recent (2022) annual budget of R2.14 per kWh,⁴⁶ the cost in 2022 would be almost R81 billion. The current annual budget allocated for free basic electricity is just under R14 billion, implying an additional spend of almost R67 billion.

Can South Africa afford to spend an extra R67 billion⁴⁷ each year on achieving the goal of universal enabling access to electricity? Is it worth the money? To those readers who are now shaking their heads in an adamant ‘no’, consider the following:

Unlike many other categories of state expenditure, which represent a total leakage from the state, the majority⁴⁸ of that total free electricity expenditure of R81 billion is going to find its way back into the revenue account of Eskom. The state is already funding that revenue account:⁴⁹ the 2022 national budget included a R21.9 billion transfer to Eskom for exactly that purpose. Wouldn't it make more development sense for that money to go via the poorest households on its way to Eskom – in the process making an enormous impact on living standards, food security and economic opportunities?

The remainder of the funding will go to local municipalities – also in dire need of additional revenue from the sales of electricity services. Improved municipal revenue will support many important functions, not least of which is infrastructure maintenance.

Providing 9 million households with a meaningful supply of free electricity is likely to reduce outstanding municipal debt, and the administrative costs associated with trying collect that debt and manage electricity disconnection and reconnections.

Providing more free electricity – together with expanding the grid to include households currently not connected – will reduce much of the incentive for households to connect illegally, and the consequent billions in financial and infrastructure losses. Households currently pay for those illegal connections – they do not come for free. If they have access to sufficient electricity for all their essential needs they will no longer have an incentive to incur those expenses.

The value of the free 350kWh for households is conservatively estimated at R650 per month. This represents a significant effective increase in household disposable income.

46 This cost (R2.14 per kWh) is a rate above the minimum rate currently charged by many service providers.

47 Or the inflation-adjusted equivalent in future years.

48 Possibly as much as two thirds, given how many low-income households are Eskom customers.

49 Because of Eskom's serious financial problems.

Even if we assume that many of the poorest households are currently paying for about 200kWh of electricity each month, they will be saving a (conservatively estimated) R371 per month⁵⁰ in electricity under the expanded free electricity policy. They will also be saving additional amounts spent each month on paraffin, coal and candles. **A free basic electricity policy of 350kWh per month would increase the total disposable household income of the poorest South Africans by about 20%.** The impact of that additional household income is significant: that amount of money can make the difference between severe child malnutrition and adequate child nutrition.

Reduced use of alternative fuels such as coal, paraffin and candles will reduce child deaths and illnesses due to indoor air pollution, and dramatically reduce fires in informal settlements.

In summary, it is hard to imagine any other development policy that could achieve as many significant development goals, for so little.

The question is not whether we can afford to spend an additional R67 billion on achieving universal enabling access to electricity. The real question is whether we can afford not to. ■

50 That is, the 200kWh they were paying for which they now get for free.

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TRACY LEDGER




Dr Tracy Ledger holds a Phd in Anthropology from the University of the Witwatersrand and an M Comm from Stellenbosch University. Her main research interests are poverty, energy poverty and access to basic services. Tracy is the author of *An Empty Plate: Why We Are Losing The Battle For Our Food System, Why It Matters and How We Can Win It Back* (2017). She is currently Head of the Energy and Society Programme at the Public Affairs Research Institute in Johannesburg.

MAHLATSE RAMPEDI



Mahlatse Rampedi holds a Master's degree in Sociology from the University of Johannesburg. His main research interests are energy, local government, service delivery and modes of popular mobilisation. Mahlatse is currently a researcher at the Public Affairs Research Institute in Johannesburg.



Despite a clear policy commitment to universal access to electricity, millions of South African households are unable to access even the minimum amount of electricity that they require to improve their lives and take advantage of economic opportunities. The original ‘electricity for all’ promise has been replaced with ‘if you are poor, you cannot have electricity’.

“We think we are free today but we are not. It is as though they removed a rock on top of black people and replaced it with steel.” - Philip, Eyadini

This groundbreaking book depicts the unforgiving reality faced by a vast number of South Africans. It presents a new model for conceptualising universal access to electricity and a clear policy roadmap for how to achieve that goal.

Ledger and Rampedi compellingly argue that universal access to electricity may be the single most important tool for reducing poverty and inequality in South Africa: it can increase quality of life, create new employment opportunities, support small enterprises and reduce food insecurity.

Hungry for Electricity traces the state’s focus on physical infrastructure without consideration of the other factors that limit the ability of poor households to use electricity to improve their lives. But electrification does not guarantee meaningful or equitable development benefits. The only kind of access to electricity that translates into meaningful development benefits is **universal enabling access**.

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