CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

THE CITY OF CAPE TOWN'S PATHWAY TO ALLEVIATE ENERGY POVERTY

Making progress possible. Together.

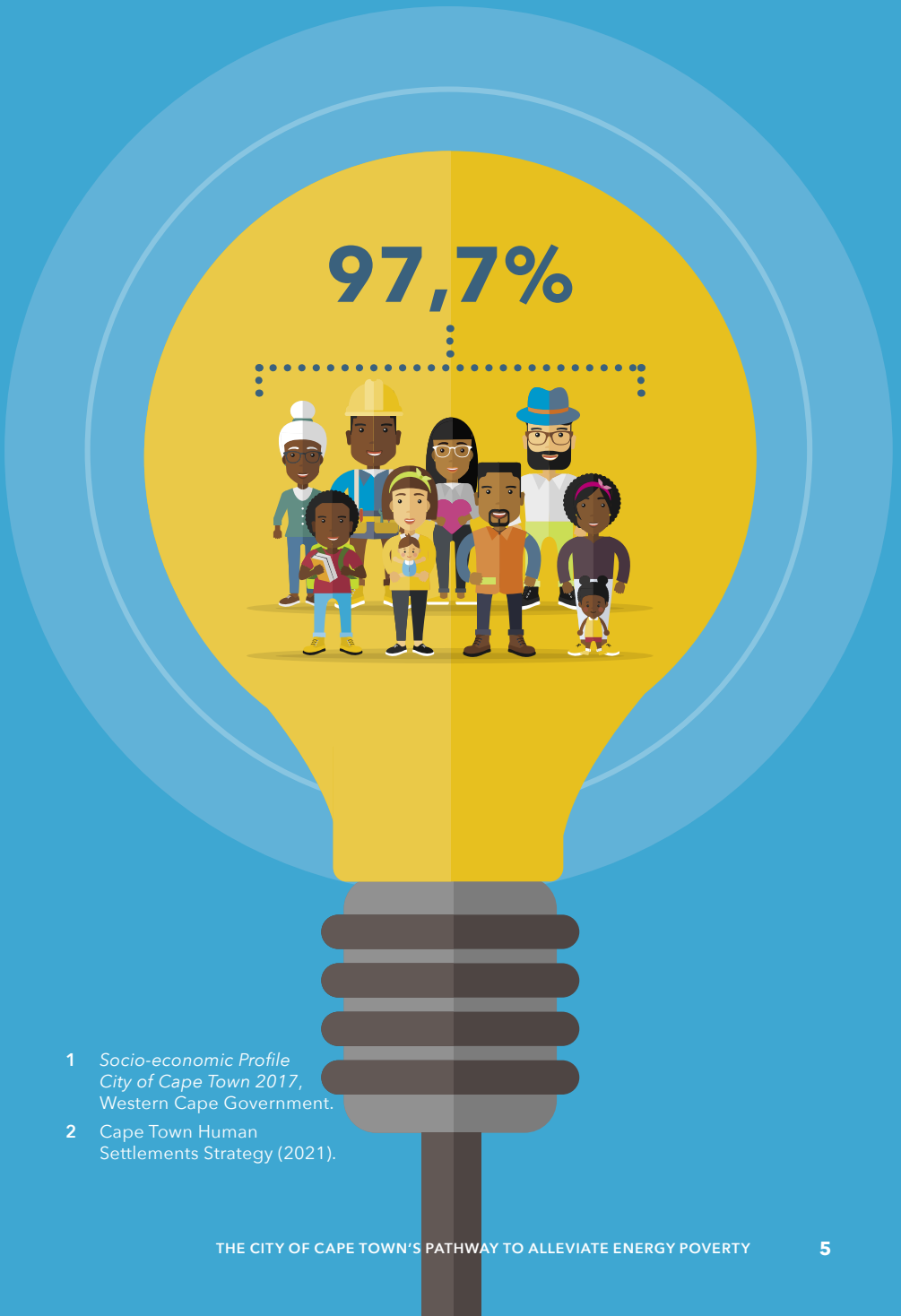
CONTENTS

INTRODUCTION

The City of Cape Town established the Low-income Energy Services (LINES) Unit in 2017. This unit forms part of the Sustainable Energy Markets Department as the driver of innovation in facilitating the provision of 'best possible' energy services to low-income communities in a sustainable manner for both the City and households. It aims to improve the quality of life and socio-economic position of low-income households by enabling the provision of cleaner and safer energy in a manner that offers choice, flexibility, and stimulates inclusivity.

Approximately 97,7%[1] of the City of Cape Town's residents have access to electricity through the national grid supply network. Despite receiving subsidised grid connections, subsidised electricity through the lifeline tariff, and free subsidised electricity through the free basic electricity (FBE) allocation, low-income households remain largely in a position of energy poverty. They are found in both electrified and un-electrified areas, including low-cost housing developments, informal settlement dwellings and backyard dwellings.

The continued decline in the City's electricity sales and rates revenue base and declining national grant allocations, coupled with the ongoing growth of informal settlements,[2] presents many challenges to improving the subsidised provision of affordable electricity for low-income households. Thus, improving energy efficiency, optimising indigent policies, and investigating the extent to which off-grid alternative energy solutions can assist in alleviating energy poverty are important. These include technical and behavioural interventions supported by sound financial models, robust ongoing stakeholder engagement including the management of expectations, 'learning through doing' pilot projects, monitoring of progress, and a persistent determination to succeed.



1 *Socio-economic Profile City of Cape Town 2017*, Western Cape Government.

2 Cape Town Human Settlements Strategy (2021).

WHY IS ALLEVIATING ENERGY POVERTY IMPORTANT?

Insufficient access to clean energy is associated with poor social and economic outcomes. Examples of these include adverse health associated with exposure to cold and heat, increased incidence of respiratory and pulmonary disease from exposure to air pollution, impeded study opportunities for children due to a lack of lighting, constrained access to information, and lack of access to current and future economic opportunities.

Electricity consumption is directly linked to affordability which includes the level of available cash to purchase prepaid electricity. Although qualifying low-income households have access to the FBE allocation, various studies[3] investigating the basic energy needs of low-income households have concluded that the current FBE allocation falls far short of what is needed and fails to adequately relieve energy poverty.

Many low-income households in the metropole therefore rely on an 'energy stacking' approach to supplement their FBE allocation, alternating between electricity and alternative energy sources (paraffin/candles) to meet their daily energy needs.[4] The use of paraffin and candles exposes the households to poor indoor air quality, child poisoning (when children accidentally drink paraffin) and shack fires. Energy poverty is not just a lack of service or choice, but also encompasses energy accessibility, reliability and affordability.

3 Programme 250: Optimising the Social Effectiveness of Electricity Services to Low-income Households, City of Cape Town (2018).

4 *Elaboration of a "Sustainable Low-income Energy Services" Study to the Benefit of the City of Cape Town*, OneWorld (2019).

THE USE OF PARAFFIN AND CANDLES EXPOSES HOUSEHOLDS TO POOR INDOOR AIR QUALITY, CHILD POISONING (WHEN CHILDREN ACCIDENTALLY DRINK PARAFFIN) AND SHACK FIRES.

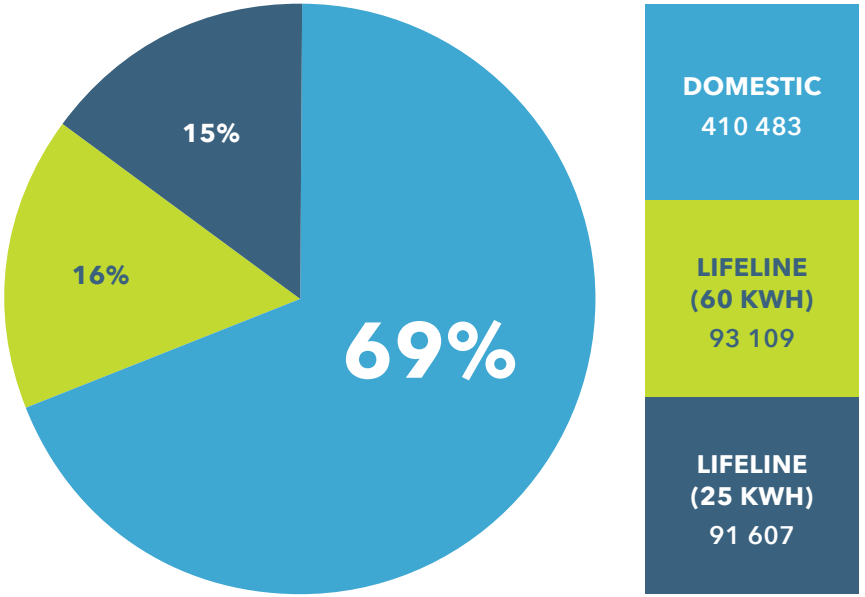
CURRENT STATUS OF ENERGY POVERTY RELIEF

ELECTRIFIED AREAS

Residents of the City of Cape Town metropolitan area are supplied electricity either by the City or by Eskom, depending on the licensed supply area in which they are located. The City provides an energy services social package to low-income households consisting of subsidised grid connections, the lifeline tariff[5] and FBE allocations. This package is made available through the City's indigent relief measures in the Credit Control and Debt Collection Policy (2020/21),[6] the Rates Policy (2020/21)[7] and Free Basic Electricity Policy (2003).[8] In the Eskom supply areas, a subsidised homelight 20A[9] electricity tariff is available to households (not necessarily low-income) whose supply is limited to a maximum of 20 Ampere.

Figure 1 indicates that 31% of residential customers are on a subsidised lifeline tariff for the City of Cape Town supply area, and 69% are on the domestic tariff.

Figure 1: Total number of customers supplied by the City of Cape Town on the domestic and lifeline tariff (2018/19)



5 Residential Electricity Tariffs, City of Cape Town (2020). http://www.capetown.gov.za/Family%20and%20home/Residential-utility-services/Residential-electricity-services/the-cost-of-electricity

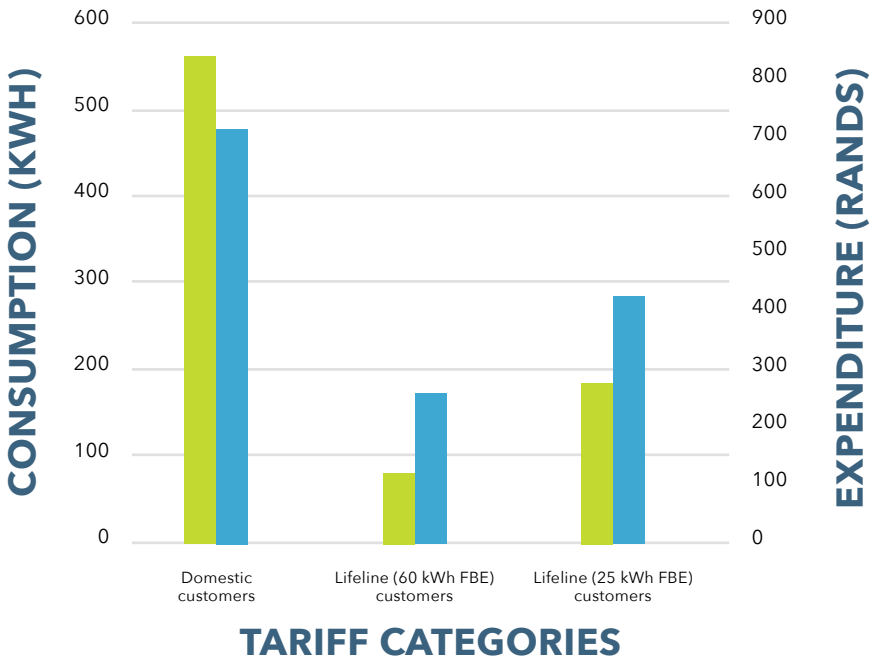
6 Credit Control and Debt Collection Policy 2020/21, City of Cape Town (2020). http://resource.capetown.gov.za/documentcentre/Documents/Bylaws%20and%20policies/Credit%20Control%20and%20Debt%20Collection%20Policy.pdf

7 Rates Policy 2020/21, City of Cape Town (2020). https://resource.capetown.gov.za/documentcentre/Documents/Bylaws%20and%20policies/Rates%20Policy.pdf

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

9 Tariffs and Charges Booklet 2020/21, Eskom (2018).

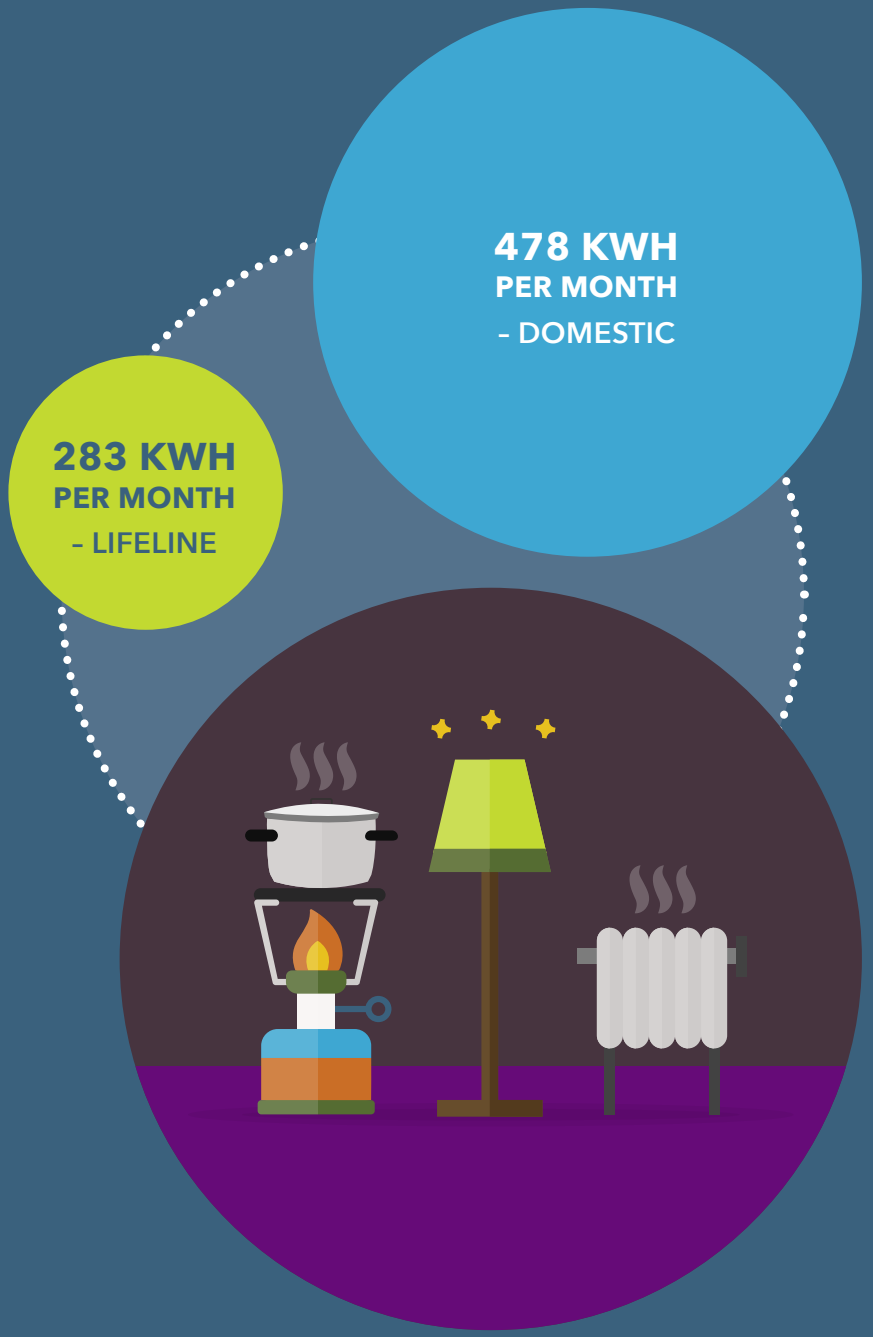
Figure 2: Average monthly expenditure and average monthly consumption (including FBE) per customer for lifeline and domestic categories (2018/19) (City of Cape Town supply area)

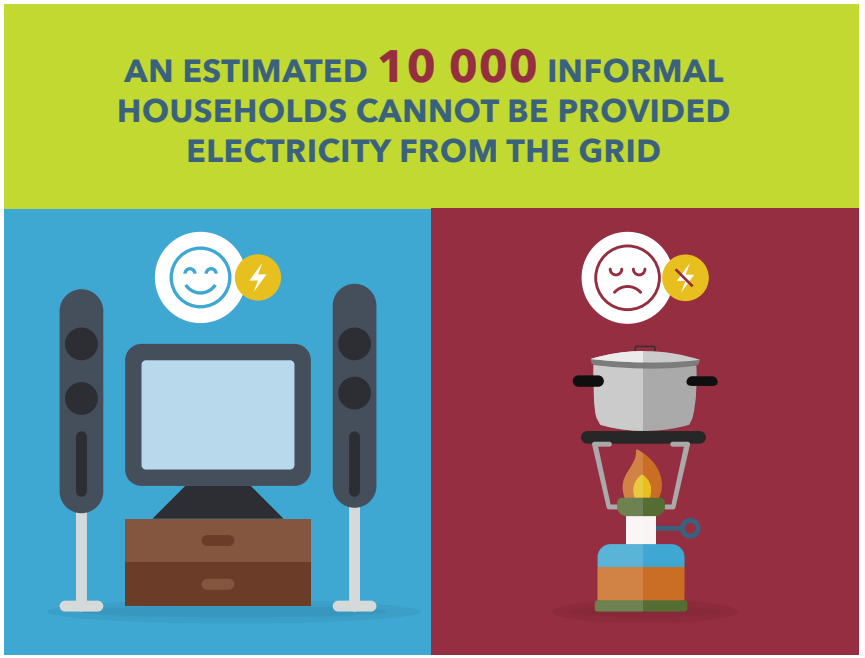


On average, City of Cape Town lifeline customers[10] consume 283 kWh per month compared to 478 kWh for other domestic customers.[11] Figure 2 illustrates a more detailed breakdown of the monthly consumption per customer in the lifeline tariff categories. As can be seen, the range of energy consumption per month in the lifeline tariff varies considerably.

10 Once a year, ALL residential customers' tariff allocations are reviewed. In the event of large changes in consumption, reassignment of a tariff can be made within a shorter period.

11 Electricity Generation and Distribution (EGD) Department sales data 2018/19.





UN-ELECTRIFIABLE AREAS

Although Cape Town is 97,7% electrified, an estimated 10 000 informal households cannot be provided electricity from the grid. These informal settlements are typically located on land which is reserved for infrastructure expansion, unsuitable or unsafe for development, or legally disputed. Due to the rapid and continuous growth of informal settlements, this statistic is constantly changing.

Furthermore, there are an additional approximately 23 000 households which are 'in the queue' to receive a grid connection, but which currently do not have access to an energy subsidy. Also, residents in backyarder dwellings are often exploited by landlords who charge excessive rates for electricity access. Not having direct grid access, these residents are exposed to an electricity supply which is expensive and often unsafe and of poor quality.

PROJECTS AND RESEARCH

Interventions undertaken by the City include:

- ✔ Solar water heater (SWH) installations in Kuyasa and Joe Slovo;
- ✔ Ceiling retrofits in areas including Mamre, Kuyasa, Gordon's Bay, Macassar, Wesbank, Sir Lowry's Pass Village and Chris Nissan Village;
- ✔ Distribution of solar kits to low-income households; and
- ✔ Knowledge sharing between stakeholders such as NGOs, academics and practitioners, as appropriate.

Research has included:

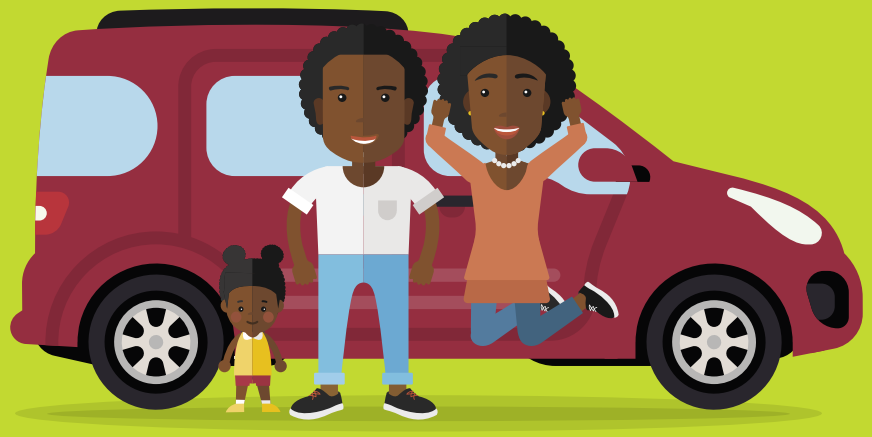
- ✔ A household energy-use study in collaboration with Sustainable Energy Africa (SEA).
- ✔ A 250 kWh study which investigated the energy needs of low-income households (contributors included SEA, University of Cape Town Energy Research Centre and others).
- ✔ A finance and economic study which investigated models that deliver the best energy services to low-income households in a sustainable manner (done by OneWorld Sustainable Investments and funded by Agence Française de Development (AFD).
- ✔ WWF South Africa collaborated with the International Institute for Sustainable Development (IISD) to conduct a study that applies a simulation approach to considering alternative infrastructure investments to provide equitable energy access to low-income households.

THE GROWING CHALLENGE

Even with the current provision of subsidised grid connections and monthly FBE allocations, the basic energy needs of the poorest residents of Cape Town are not being adequately met.

The sustained growth of low-income communities and the need for municipal financial viability means the City's options for maintaining the subsidised provision of affordable electricity for low-income households are narrowing. Innovative, affordable and user-acceptable alternative energy solutions are therefore required. To maintain and enhance energy services to the City's poor citizens, collaboration across City departments and with NGOs, suppliers, ratepayers, businesses and civil society will be necessary.

ACCESS TO GRID ELECTRICITY PROVIDES A SAFER AND HEALTHIER ENVIRONMENT AND IMPROVED ACCESS TO EDUCATION AND JOB OPPORTUNITIES, ALL WHICH STIMULATE LONG-TERM SOCIAL AND ECONOMIC DEVELOPMENT.



CURRENT AREAS OF FOCUS

A multidimensional approach is required to reduce energy poverty, which includes the following:

1. GRANTS AND SUBSIDIES FOR THE POOR

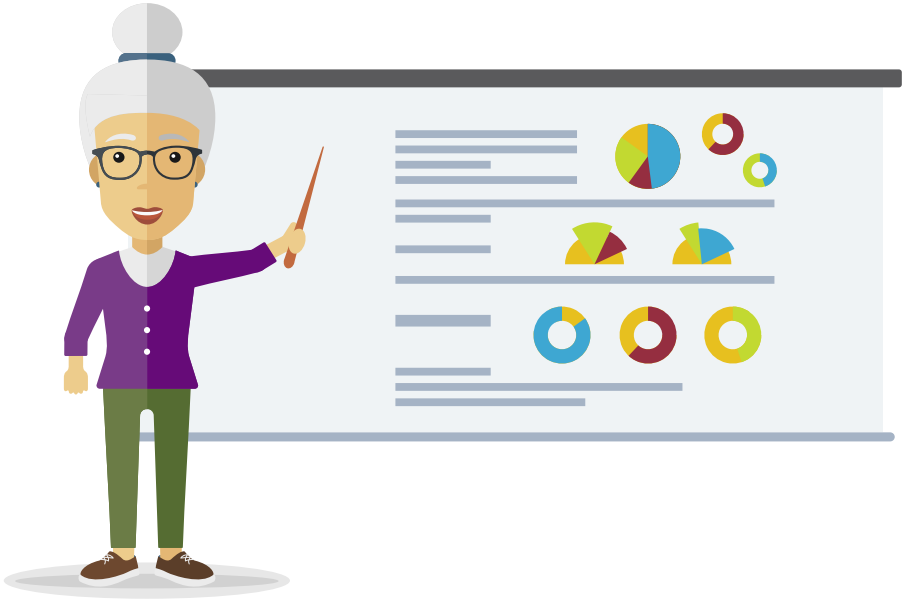
- Investigate further optimisation of subsidised electricity tariffs and their administration to ensure that existing energy subsidies for low-income households and indigent household-targeted national grants for the City are accurately and efficiently applied and fully accessed.
- Investigate the possibility of providing a subsidy for alternative energy for households without access to grid electricity.

2. ALTERNATIVE ENERGY SOURCES AND ENERGY EFFICIENCY

- Through education and communication campaigns we encourage households to use all available energy resources safely and efficiently.
- Promote the thermal efficiency of informal and formal dwellings through the application of appropriate design principles and construction techniques.
- Investigate the shifting of electricity use outside of peak periods through energy storage.
- Investigate the use of new and innovative technologies such as rooftop solar PV, solar water heaters, battery storage and smart grid functionality. Solutions need to be affordable, sustainable and acceptable to targetted communities. They also need to be legal, politically acceptable and resistant to theft and vandalism. Energy subsidies need to be fraud proof and efficiently dispensed.
- Promote and facilitate cleaner energy sources for cooking such as liquefied petroleum gas (LPG) instead of paraffin and biomass.
- In collaboration with the Human Settlements Department, assist the Department of Mineral Resources and Energy (DMRE) with the National Solar Water Heater Programme's rollout.

3. COMMUNICATION

- Prioritise effective education and awareness raising for low-income energy users, including information about energy efficiency, safety, tampering and theft.



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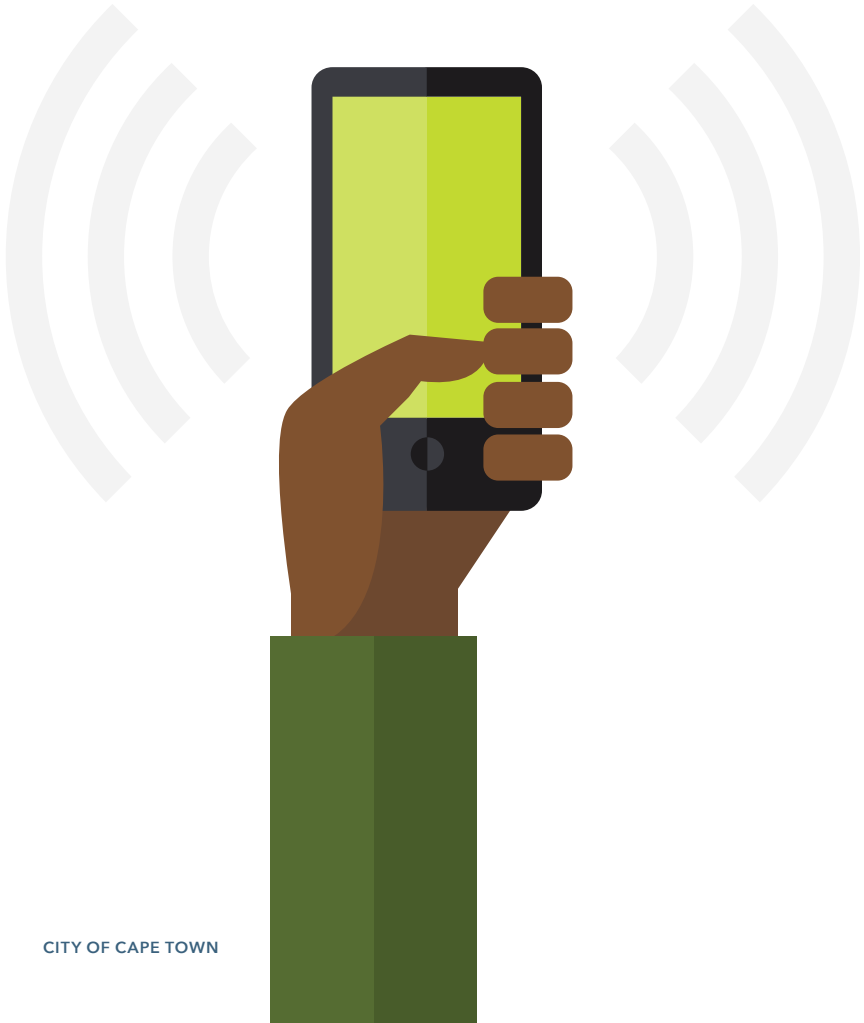

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