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**INDIVIDUAL ASSIGNMENT**

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**LECTURER COMMENTS:**

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# Research Title

Determining factors that lead to energy poverty for strategy development

# Field of Study

Strategy management

# About the topic

Energy poverty is a global challenge for both developed and developing countries affecting mainly low-income households especially, in developing countries. In addressing this challenge developed countries have established policies and frameworks that aim at mitigating the impact of energy poverty (Predo and Joao, 2022). Predo & Joao (2022) further states that having adequate information through monitoring and measurement will lead to a better understanding of how severe the challenge of energy poverty is. Having an in-depth understanding of what are the causes of energy poverty will lead to the development of effective evidence-based strategies.

Energy poverty for households is defined as a "lack of access to sufficient, affordable, and high-quality energy to meet the basic household requirement" (Xiahui et al., 2020). Predo and Joao (2022) state that energy poverty is measured as a percentage of household expenditure where a threshold of 10% is used meaning that if the household spends 10% of its income on energy then it is considered to be energy poor. However other scholars like Ye and Koch (2021) argue that using the threshold of expenditure is misleading and is not a good indicator of energy poverty as it ignores other factors that lead to the consumer not purchasing electricity. Kaja, et., (2019) explains that in measuring energy poverty other factors like socio-demographic and housing characteristics must be taken into account.

Identifying as many factors as possible that lead to energy poverty will lead to the formulation of a tangible and executable strategy that will eradicate energy poverty.

# Key Journals

Energy Policy

Energy Economics

Renewable Energy

# What is the industry / business

Energy Sector

# What is known

Energy poverty from the definition provided is measured on two indicators which are access and affordability. South African government has made several efforts to assist low-income households by initiating programs that are meant to provide access to electricity and make it affordable to use electricity.

Significant progress has been made by South Africa in ensuring that households who are in previously disadvantaged areas have access to electricity in line with the UN’s objective to reach universal access by 2030. The World Bank Global Electrification Database indicates that South Africa has been able to provide electricity to 85% of South African households in the year 2020, which is a significant increase from the 58% in 1996 (World Bank Global Electrification Database, 2020). The population that has access to clean fuels and technology for cooking was 86.3% in 2019 (World Bank Global Electrification Database, 2020). Whilst the electrification program is a success story for South Africa, there is enough evidence that shows that households continue to use other traditional sources of energy such as paraffin, wood, cow dung, etc. The Eskom financial report of 2021 indicated that sales generated from residential areas have dropped, and the number of “zero buying customers” has increased, this could be indicating that households are relying on alternative sources.

Lefkothea and Dimitris (2018) state that having access to electricity through the grid or renewable sources does not equate to full usage. Lefkothea and Dimitris (2018) further state that the usage of energy is primarily dependent on affordability, a lot of households in low-income areas are not able to meet their energy needs due to affordability and this is mainly due to the high cost of energy, and energy inefficient building structures used for.

Ye and Koch (2021) explain that low-income households due to their vulnerability to economic fluctuations may need to reprioritise their household spending which may result in households buying less electricity (reduction in energy consumption) to provide for other households' income. Isaac and Michael (2021) explain that one of the drivers of energy poverty is the high cost of energy. This low usage of electricity is contributed by the high cost of energy which is not affordable to low-income households, pointing out that affordability is the main issue that contributes to energy poverty rather than access to energy services (Philip Kofi et al., 2021).

In addressing affordability the South African government in 2003 put in place a policy of Free Basic Electricity (FBE) program which is managed by the local municipalities and funded through the equitable share grant that the municipalities receive from the National Treasury. Through this program indigents (poor households) are provided 50kWh per month, which is deemed to be sufficient to meet the basic energy requirements in-line with the International Energy Agency (IEA) (Ye & Koch, 2021).

In 2007 the government introduced Free Basic Alternative Energy (FBAE) was put in place by the South African government in 2007. The objective of the FBAE program was to provide alternative energy to households that have no access to electricity, these alternative sources would include solar home systems, gas, coal paraffin, etc. The FBAE program only had an uptake of about 1% off-which a bulk uptake was on solar home systems (Stats SA, 2021b). The rollout of these programs has not impacted the poor households significantly as the uptake is, according to the South African Statistics 2021b report only 10% of the households have benefited from the FBE program and 1% from the FBAE program (Stats SA 2021b).

Ye & Koch (2021) say that one of the reasons for low intake for these programs is the lack of awareness from households about such programs and there is a need for a strong drive to make customers aware of these programs. Also that the 50kWh provided by the FBE program is not sufficient for households to fully satisfy the basic energy requirements for households, as a result, they will have to top up by buying additional units whilst others resort to illegal connection to the grid. (Ye & Koch, 2021)

With the rise of energy costs in South Africa, as the Electricity Supply Industry is continuously increasing the price of electricity to achieve cost-reflective tariffs, energy poverty is expected to be even more severe for low-income households as the cost will be directly passed on to consumers (Ye & Koch, 2021).

This, therefore, necessitates an urgent systematic solution that will reduce or eliminate the negative impact of energy poverty on low-income households by first identifying the factors that lead to energy poverty (Kaja, Renata, & Boris, 2019).

# What is not known

How energy poverty is measured is a serious dilemma amongst researchers and practitioners. (Ye & Koch, 2021) explains that using a threshold of 10% of income as a benchmark to define energy-poor households, will lead to understating energy poverty as low-income households will intentionally limit their expenditure on energy to prioritise other household goods. (Predo & Joao, 2022) states that energy must not be measured by a single indicator, there is a need to have a multidimensional metric that will take into account other factors such as access, energy efficiency, energy requirements, flexibility, and household practices. Putting these factors together into a multidimensional metric will provide a more adequate approach to the measurement of energy poverty.

# The importance of knowing what is not known

Energy poverty is drastically increasing and requires the development of appropriate and relevant strategies that are implementable. Predo and Joao (2022) state that to develop an effective strategy to deal with energy poverty it is important to understand the factors that drive energy poverty and the outcomes thereof. Using a multidimensional metric will provide comprehensive details which are more relevant to the local realities and also give better context which will then lead to the development of the appropriate strategy.

How are you going to go about researching this?

**i. Who/what are you going to be studying?**

The research will be conducted using a mixed method combining both quantitative and qualitative methods. A village in the North West Province since and the village must have been electrified in the last three years. A desktop exercise will be done on the Eskom customer base to identify villages that are showing a decline in sales.

Data collection from customers through semi-structured interviews, to obtain information that is relevant from households with regards to energy usage patterns and decision-making regarding buying as well as usage of electricity. Eskom customer services and Local Municipality staff information will be collected via a survey questionnaire which will be designed using Google Forms.

## **ii. Why are they (who/what) relevant?**

The North West Province has been the most successful in electrifying rural villages and currently has a high rate of unemployment estimated at 39%. The province becomes relevant to gather information related to energy poverty. Customer services staff become relevant as they are on the front line and interact with customers on the regular basis.

## **iii. How will they (who/what) benefit/ be impacted by the research?**

The research will benefit the Electricity Supply Industry as a whole as it will provide more understanding of the challenge of energy poverty in the country. Municipalities and Eskom will then be able to formulate strategies that will be effective and relevant in addressing the challenge. Policymakers will also benefit from the research outputs as they will influence some decisions when making policies.

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