ENERGY EFFICIENCY AS AN INNOVATIVE APPROACH FOR TRANSFORMATION IN THE PROVISION OF ELECTRICITY SERVICES IN TIMES OF DISRUPTION

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Presentation Outline

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2. ENERGY EFFICIENCY STRATEGIES FOR MINIGRIDS
3. BUSINESS MODELS TO SUPPORT ENERGY EFFICIENCY
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6. OPPORTUNITIES FOR ENTREPRENEURS
7. CONCLUSION


Energy Efficiency
Think
Act
Save

1.0 INTRODUCTION

- Based on statistics from the Zambia Statistics Agency (ZAMSTATS) 2018 Zambia Demographic Health Survey Report, only 8.1% 0f the rural population has access to electricity (ZAMSTATS 2018).

- With these dismal statistics, there is need for adoption of innovative business models in the provision of electricity services in rural areas in order to reach the set ambition targets in the Rural Electrification Master Plan (REMP, 2007) and also contribute to achieving Sustainable Development Goal (SDG) No. 7, Universal Access to Affordable and Clean Energy.

- Taking cognizance of the economic and technological disruptions brought about by effects of climate change and the COVID-19 pandemic in recent times, the Operators must commence implementation of innovative business models to ensure that their programmes are sustained.

INTRODUCTION CONT'D

- One of the measures is to promote Energy Efficiency in the rural electrification programmes such as use of energy efficient appliances for both domestic and productive uses of electricity as well as innovative payment systems for electricity aimed at the application of the end-use tariff for electricity as opposed to kWh tariff.

- This entails promoting the use of Energy as a Service (EaaS) business model using the Pay as you Go (PAYGO) approach in the billing system of off-grid solutions.

- Promoting use of energy efficient appliances leads to lower electricity bills which would result in re-allocation of funds to other competing needs in times of hardship.

- In the same vein, by promoting innovative payment systems plant O&M costs would reduce and also the need for physical contact between customers and electricity service providers would be minimized.

2.0 ENERGY EFFICIENCY MEASURES FOR MINIGRIDS

- Technological options adopted by Operators will be supported by Energy Efficiency measures and strategies that would ensure sustainability of the Minigrids.

- Energy Efficiency measures for rural electrification include the following among others:

  - **Lighting**: Restrict households and businesses to using low-wattage LED bulbs instead of incandescent bulbs.

  - **Cooking and Water Heating:** Promote the use of Electric Pressure Cookers (EPC), Electric Slow Cookers (ESC), Electric Frying Pans (EFP) and Solar Geysers as part of the efficient energy measures in all its projects.

  - **Productive Use Operators:** should aim to facilitate the introduction of energy-efficient equipment for productive uses such as water provision.

3.0 ENERGY EFFICIENCY STRATEGIES FOR MINIGRIDS

- **Pre-Project Energy Requirement Assessments**: Undertake research before project implementation to take account of the potential appliances to be adopted by the consumers.

- **Energy Audits**: Undertake energy audits in areas where electricity already exists in order to identify the problems around energy efficiency and what should be done to solve them.

- **Adoption of Modern Billing Models**: Promote the use of Energy as a Service (EaaS) business model using the Pay as you Go (PAYGO) approach in the billing system of off-grid solutions. The EaaS business model entails the application of the end-use tariff for electricity which conforms to the already existing lifestyle of rural communities where they purchase energy as and when they need to use it as opposed to kWh tariff.

- **Financing Mechanisms for Appliances**: Identify suppliers of energy efficient appliances for both domestic and productive uses as well as financial institutions. Thereafter, electricity consumers would be supplied these items on a lease-to-own basis for those who cannot afford to pay spot cash.

ENERGY EFFICIENT STRATEGIES CONT'D

- **Engaging with Stakeholders:** Identify stakeholders that will be relevant to championing energy efficiency e.g. local traditional leaders.

- **Awareness and Sensitization:** Utilize Stakeholder Management Plans and communication strategies to carry out awareness and sensitization campaigns on energy efficiency.

- **Advice and Capacity Building:** Develop need-based training programmes as effective tools for the capacity building of different groups of potential beneficiaries on Energy Efficiency.

- **Market Transformation**: The Operators should support testing innovative technologies in the energy efficiency market through pilot support and demonstration projects.

4.0 BUSINESS MODELS TO SUPPORT ENERGY EFFICIENCY

- In order to encourage energy efficiency, Minigrid Operators should adopt Energy as a Service (EaaS) business model using the Pay as you Go (PAYGO) for its off-grid projects.

- The EaaS model will allow Operators to offer various energy-related services to the consumers, rather than only supplying electricity.

- Therefore, rural customers would be provided with energy efficient appliances such as Electrical Pressure Cookers (EPCs) for their cooking needs on a lease-to-own basis.

- The Operators can adopt “usage-based" payment PAYGO Model where the customers will be allowed to load money onto a prepaid meter and use the amount of electricity that corresponds to the amount of money paid.

5.0 FINANCING MECHANISMS FOR ENERGY EFFICIENT APPLIANCES

- Operators must identify and work with suppliers of energy efficient appliances for both domestic and productive uses on a lease-to-own basis for those who cannot afford to pay cash.

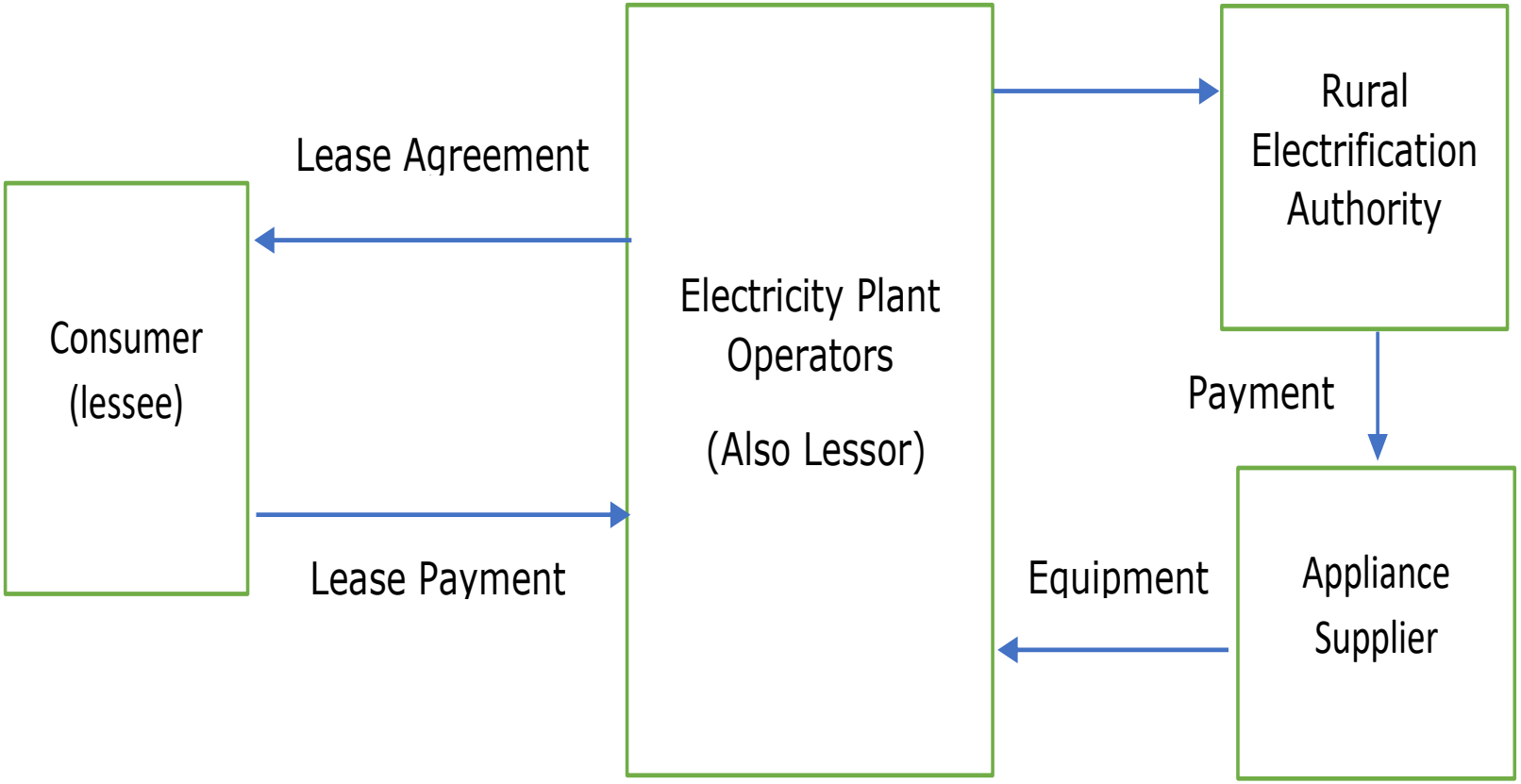
- The lease-to-own model will enable users to purchase appliances and pay in instalments.

- In this case, Operators could package the energy efficient appliances such as Energy Pressure Cookers, as part of the project.

- The suppliers will deliver the appliances to the electricity plant operators who will lease the appliances to the consumers.

- The model can also include local and trusted institutions like the Church to help with appliance vending.

LEASE-TO OWN FINANCING MODEL



7.0 OPPORTUNITIES FOR ENTREPRENEURS

- There is room for innovation by the engineering fraternity to support the efforts of REA to mainstream energy efficiency in its programme.

- The following opportunities could be explored:
  - Participation in energy studies commissioned by institutions such REA or EIZ (Energy Audits?).
  - Design of Energy Efficient products for both domestic and productive uses (e.g milling machines, welding machines, lighting appliances etc)
  - Development of digital payment platforms to support efficient collection of fees in conjunction with mobile phone service providers.

- The Solar Minigrid Association can support testing innovative technologies in the energy efficiency market by lobbying DFI's.

8.0 CONCLUSION

- It is essential that electricity being supplied to rural areas be utilized more efficiently.
- Promoters should aim to effectively push the efficient energy utilization through various measures outlined above.
- This means that other than powering the household in various ways, it can be used to generate more income and ultimately improve quality of life.
- It is highly recommended that local Engineering Content the measures be utilized to promote energy efficiency in Minigrids.

THANK YOU