

FARMERS INDABA-

ENSURING FOOD SECURITY THROUGH ENERGY EFFICIENCY

By Wonder Chabikwa-President
ZCFU & Chair- Joint Presidents
Council(JPC)
18/08/15

Presentation will focus on the following topics;

1. Contemporary energy challenges in the farming sector;
2. Electricity bill for farmers:
 - Cyclic nature of agricultural output and its implications on the monthly billing system.
 - Options for payment of bills.
 - Challenges of an estimated billing system and disconnections thereof.
3. Electricity bill as a component of cost in the farming sector.
4. Electricity savings(virtual power station) options available to farmers in the absence of new generation

Energy and Agriculture

Introduction

- **Energy has always been essential for the production of food. Prior to the industrial revolution, the primary energy input for agriculture was the sun; photosynthesis enabled plants to grow, and plants served as food for livestock, which provided fertilizer (manure) and muscle power for farming. However, as a result of the industrialization and consolidation of agriculture, food production has become increasingly dependent on energy derived from fossil fuels, water and mineral elements(e.g. Uranium)**

1. Contemporary Energy challenges in The Farming sector-

In Zimbabwe, farmers use the following energy sources;
-electricity, firewood, coal, solar, diesel and petrol.

- Inadequacy (load–shedding);
- Cost (use and transportation)
- Distribution challenges-grid system for electricity(infrastructural challenges) (road and railway inefficiencies);
- Erratic supply (electricity and coal);
- Efficiency of use;
- Lack of/ little knowledge on best ways to utilize available energy;
- Faults and response to them (ZESA);
- Finite resource (especially fossil based energy sources);

2. Electricity bill for farmers:

- **Cyclic nature of agricultural output and its implications on the monthly billing system-**
 - managing the electricity bill has been a nightmare for the farmer for the following reasons;
 - i. The billing system used has never taken into consideration the production cycle;**
 - ii. Farmer is therefore forced to borrow in order to retire the monthly charge or goes into arrears which eventually attract interest;**
 - iii. You are forced to cut on use of electricity so that the bill remains manageable thereby undermining critical operations that may need more power;**
 - iv. This eventually impacts negatively on quality of final product-costing the farmer money**

•Options for payment of bills

- i. Stop order arrangement at point of sale;
- ii. Quarterly or biannual payments or any other agreed period between the sector players;
- iii. Prepayments –optional –where a farmer can.

•Challenges of an estimated billing system and disconnections thereof;

- An estimated bill is not reflective of what's taking place-energy consumption swings depending on the activities on the farm-the consumer has always been disadvantaged;
- Its difficult for a farmer to employ energy saving techniques when he/she is always being charged estimated costs;
- Budgeting becomes difficult because estimates are not always consistent;
- Disconnections disturb production, distress the farmer and are retrogressive;
- Instead payment plans are the way to go-it's an alternative with a positive thrust;
- Where the consumer in question repeatedly fails even to honour an agreed payment plan put him/her on a prepaid facility;
- In some extreme cases disconnected consumers can choose to ignore the debt and use of electricity permanently.

3. Electricity bill as a component of cost in the farming sector.

- Electricity has been the most preferred energy in recent times due to a number of its attributes i.e.- its clean and efficient. This however has been at a very huge cost to the farmer especially where;
 - winter cropping is being done;
 - early establishment of summer crops way before onset of rains;
 - faults coupled with scheduled/unscheduled load shedding one has to switch on a generator to save the crop or aid a critical operation. You no longer talk of electricity only BUT diesel , petrol and firewood.
- The cost of electricity in **Zimbabwe is 14c/kWh (VAT & REA included) ,**
- **Zambia 3c-4c/kWh &**
- **SADC Averages 5.5c/kWh.**
- **Before the adoption of the multi-currency system farmers used to enjoy a government subsidy-critical for primary production to stimulate growth; they paid 45% of the cost of electricity; meaning that in today's situation a figure of 6.3c/kWh would be appropriate;**
- **If this cant be agreed to then we recommend the removal of VAT and reduction of the REA Levy to farmers by half.**

3. Electricity bill as a component of cost in the farming sector (cont'd)

- you would notice that one of the major factors discouraging wheat production is the cost of electricity- almost 44% of the wheat budget is the electricity component.
- **Inefficient users of electricity-** those with obsolete plant and machinery should pay more rather than everyone to subsidize their existence- this will force them to move with technology;
- Diesel and petrol have been used to mitigate the effects of load-shedding and erratic power supply- ZERA should facilitate a lower price of these to farmers rather than pump price. A Combi, luxury sedan and a farm Tractor shouldn't get fuel at the same price

3. Electricity bill as a component of cost in the farming sector (cont'd)

- We recommend more research and investment into sustainable energy sources (windmill, solar, biogas);
- Zimbabwe's fuel and oil is the most expensive in the region-need redress. E.g diesel in Zambia (more landlocked) costs on average **\$1.10** against **\$1.32** in Zimbabwe

4. Electricity savings(virtual power station) options available to farmers in the absence of new generation

- **A Virtual Power Station**, also known as Virtual Power Plant (VPP), is not a physical power station but makes extensive and sophisticated use of information technology, advanced metering, automated control capabilities, and electricity storage to match short-interval load fluctuations.
- The Southern African Power Pool (SAPP) is actively pursuing the concept of a virtual power station as it seeks to augment on-going efforts to increase electricity generation capacity to beat shortages in the region.
- The VPP integrates the operation of supply- and-demand-side assets to meet consumer demand for energy services in both the short- and long-term.
- Research shows that residential lighting accounts for about **20 percent** of the average home electricity bill in the SADC region.

4. Electricity savings(virtual power station) options available to farmers in the absence of new generation

- The VPP concept also makes use of long-term load reduction achieved through energy efficiency investments, distributed generation, and **verified demand response** on an equal footing with supply expansion.
- The power utilities in mainland SADC Member States, with the exception of Angola, Malawi and the United Republic of Tanzania, are interconnected through SAPP, allowing them to sell electricity to one another through a competitive market.
- Faced with an electricity shortfall of about 8,000 Megawatts (MW), the SAPP has also been actively promoting energy efficiency technologies such as the replacement of incandescent bulbs with Compact Fluorescent Lamps (CFLs) and solar lamps as well as introduction of the solar water heater programme, hot water load control, and the commercial lighting programme.
- Switching from traditional light bulbs to CFLs has been an effective programme by SAPP to reduce energy use at home and prevent greenhouse gas emissions that contribute to climate change. **Saved power will be channeled towards productive sectors like farming.**

4) Electricity savings(virtual power station) options available to farmers in the absence of new generation (cont'd)

- However, compared to incandescent bulbs, CFLs have been shown to save up to 80 percent of electricity consumption.
- Similarly, the hot water load control programme being pursued by SAPP has enabled consumers to install load-control switches that automatically turn off power during peak periods or when appliances such as geysers have reached maximum demand.
- Most SAPP member countries have introduced the CFLs on a large scale. Other forms of energy efficiency and Demand Side Management (DSM) programmes are at various levels of implementation.

For the Regulator (ZERA)

- *Finally, what is ZERA's role in the regulation of firewood as energy for tobacco curing?*
- *Why does it take so long to adjust fuel in Zimbabwe when global oil prices fall whereas its instant when they rise?*

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ECONOMY!!!!*

DANKIE