

Utilization of Power Supply of National Food Authority Sorsogon Branch Office

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Abstract— This study assessed the utilization of the power supply of the National Food Authority (NFA) Sorsogon Branch in the year 2019-2021. It looked into the budget and expenditures on the power supply and the estimated cost of consumption of the equipment used by the office. In addition, the efficiency of the power supply was evaluated in this research. A descriptive research method was utilized using interview and document analysis as the primary sources of gathering the data. Findings result showed in the year 2019-2021, the requested budget allocation increased yearly, however, the approved budget is lower than the requested fund. Findings also showed the expenditures of the NFA office exceeded the approved budget hence resulting in a budget deficit on power expenditures. The result also revealed the cost of consumption of equipment operated on a regular basis but operating hours are extended during harvest season. Cost of consumption increased yearly except in the year 2020, a low consumption was recorded due to the COVID 19 Pandemic where restrictions and work-from-home schemes were imposed hence resulting in low procurement and scheduled operating hours of the equipment. While on the efficiency, of the power supply, the findings showed the frequency of power interruptions and fluctuations experienced by the NFA.

Power outages and fluctuations affected the drying process and work performance of the employees as its operations are heavily dependent on a power supply for operating the equipment. Based on these findings, recommendations are provided: To ascertain consumption patterns, the NFA Sorsogon Branch office may undertake an energy audit. Additionally, it is advised to adopt a purchasing policy that takes energy efficiency ratings into account to improve power management for equipment. The NFA Sorsogon Branch may also carry out a feasibility assessment on the integration of renewable energy sources and promote energy saving among its employees and clients.

Keywords— Utilization, Power Supply, Expenditures, Efficiency.

INTRODUCTION

Southeast Asia's power consumption has been increasing steadily due to population growth, urbanization, and industrialization. The region accounted for about 9% of global energy consumption in 2020. Coal is a dominant energy source, while some countries are turning to renewables. While, the Philippines' electricity consumption grew by 4.3% per year between 2000 and 2019, driven by the residential and commercial sectors. IEA, Southeast Asia Energy Outlook 2021.

In order to direct nations toward sustainable development, the United Nations (UN) established the Sustainable Development Goals (SDGs), a collection of 17 global objectives. Assuring that everyone has access to reasonably priced, dependable, sustainable, and modern energy is a key component of SDG 7. Promoting ethical and sustainable energy resource use is the overarching purpose of integrating energy efficiency in the SDGs. Energy waste can be reduced, climate change can be mitigated, energy security can be improved, green employment can be created, and disadvantaged groups can have better access to electricity through increasing energy efficiency. A more sustainable and

low-carbon future may be achieved via improving energy efficiency. United Nations (2015)

In accordance with the UN sustainable development goals (SDGs) and the 2030 Agenda, the Philippines demonstrates commitment to promoting energy efficiency as a key component of its sustainable development goals. The SDG's goal for affordable and clean energy is strengthened as it has incorporated into Philippine Development Plan (2017-2022). NEDA, 2022.

According to a 2018 report by the Department of Energy (DOE), the Philippine government was implementing energy efficiency measures in its buildings and facilities, resulting in significant energy savings. The report noted that government agencies were required to submit annual reports on their energy consumption and efficiency measures.

The National Food authority is under the Department of Agriculture (DA) the executive department responsible for the formulation, implementation, and coordination of policies, plans, programs, and regulations related to agriculture, fisheries, and rural development in the

country in the Philippines. The NFA is tasked with ensuring the availability of rice supply when calamity arises to protect the welfare of rice farmers and consumers. <https://www.nfa.gov.ph>

National Food Authority Sorsogon Branch Office is one of the branch offices of National Food Authority located in Sorsogon Province, which is known for its agricultural production, including palay procurement. Its fund source is coming from the Department of Budget and Management, distributed to its main office or the central office distributed it in every Regional Offices and allotted to each and every branch according to their request. These funds are being allocated to mobilize the management operations of the NFA. Part of the budget is allotted for power consumption expenditures which is taken from Maintenance & Other Operating Expenses (MOOE).

Power supply is an integral to NFA to support its operations, including palay drying, documentation, storage, and distribution of rice. The power supply supplied by the SORECO II Cooperative plays a crucial role in the functioning of NFA Sorsogon, in the operation of dryers, warehouses, offices and other facilities.

Reliable and continuous power supply is essential for the proper storage and processing of rice to maintain its quality and prevent spoilage.

Additionally, it is required for the operation of equipment and machinery used in rice production and distribution, such as drying machines and truckscale. Any interruption or instability in power supply can result in disruptions in National Food Authority Sorsogon's operations, leading to delays, losses, and decreased efficiency.

As power consumption is vital to operations of NFA, budget allotment for power consumption has been a basic component of MOOE Of the agency. The cost of electricity consumption constitutes a significant portion of an agency's utility expenses.

Given the limited financial resources, the NFA strives to manage and reduce their power consumption budget shortfalls on electricity expenses. The management promoted employee awareness on energy conservation to lower power consumption. However, despite this undertakings, still the actual power expenses are too high compared to its allotted budget.

STATEMENT OF THE PROBLEM

This study assessed the Utilization of power supply of National Food Authority, Sorsogon Branch office for the Fiscal year 2019- 2021.

Specifically, it sought to answer the following questions:

1. What is the budget allocation and expenditures of power supply?
2. What is the estimated monthly power supply consumption of electrical equipments used by the NFA in terms of:
 - a. Total Wattage of equipment
 - b. Average Hours of usage per day
 - c. Estimated kilowatt usage per day
 - d. Estimated basic charge
 - e. Estimated Total Cost of consumption per month
3. What is the efficiency of power supply used by the NFA?
4. What cost saving measures can be proposed based on the result of the study?

METHODOLOGY

This study assessed the utilization of power supply of National Food Authority, Sorsogon Branch Office fiscal year 2019-2021. The descriptive method of research was used in this study to describe and explain the characteristics or phenomena of a particular subject or population. The present study employed a document analysis and interview to gather the data. The collected data were treated and analyzed using the appropriate statistical tools.

The Informants

The informants of the study were the employees of NFA Sorsogon Branch Office. The researcher identified the 10 key informants who were assigned at the different departments using the equipment for their operations. The present study employed a purposive sampling. It helped the researcher to obtain the most reliable informations as they were directly involved in operating the machineries and equipment using the conventional power supply.

The Instrument

The primary source of the data of this research was the record available at the NFA Sorsogon Branch office and SORECO II Cooperative. These records were used to identify the total wattages of the equipments, their estimated operating hours and the estimated cost of consumption. While the estimated basic charges and the

power interruptions and fluctuation records were requested from the SORECO II Cooperative. Moreover, the secondary sources of data were obtained from an unstructured interview conducted from the selected employees of the NFA. An interview guide was provided to guide the researcher in getting the most valid and appropriate responses intended for this research. The instrument includes guide questions focusing on the efficiency of power supply. An open ended question was also provided in the instrument to serve as inputs to the proposed cost saving measures for utilization of power supply.

Data Collection Procedures

To gather the data, the researcher ask permission to the conduct study from the Dean and the Head of the NFA as the initial data collection process. After the approval has being sought, the researcher proceeded to sending of requests for records from the NFA Sorsogon Branch office and the SORECO II Cooperative Office. The researcher also requested to conduct interview with the identified employees in the same office and after the request was granted, the researcher informed the identified informants and requested their availability of time for the conduct of interview. After the collection of the data, the data gathered were treated and analyzed using the appropriate statistical tools. The collected data on the actual cost of consumption and utilization were organized and tabulated using frequency count. Likewise, the total number of equipment using power supply and their cost of consumption were tabulated and analyzed using frequency count also. Same treatment was employed for analyzing and tabulating the efficiency and the of the power supply.

RESULTS AND DISCUSSION

Based on the data gathered, the following results were revealed:

Expenditures on power supply of National Food Authority Sorsogon Branch (NFA).

It can be gleaned from the Project Procurement Management Plan by the agency for electricity or power supply covering the period from 2019- 2021. For the year 2019, based from the PPMP and its Annual Procurement Plan, the NFA requested the amount of Php 148,800.00 every quarter with a total of 595,200 for the annual request for electricity. While 302,792.00 is the total approved budget. While the actual expenditure reached Php 459, 739.99. Findings also revealed that the second quarter was the highest power supply consumption with the amount of Php 141,703.84, while

the allotted budget was 80,000.00. This quarter is the peak season of NFA procurement of Palay. This is the period where the mechanical dryer is used daily in drying Palay procured for buffer stocking. While on the other hand the lowest electricity bill consumption is the first quarter amounting only to 93,640.68, the operation of this quarter had just started and transactions in the office and dryer house were minimal, lower electricity expenses is expected. In the year 2020, the NFA requested the total amount of 720,000 as reflected in its PPMP, while the actual expenditures for electricity amounted to 475,374.54. In the year 2020 180,000 for each quarter were also required by the NFA due to the increasing demand of power consumption in the compound. The request increased due to projection and scenario of procuring more Palay for this year and most of the time the mechanical dryers were used. No data has been provided for allotted budget in this particular year because of unavailability of data associated to pandemic.

In the year 2021, requested PPMP were 372,000.00 uniformly for each quarter. Uniformity in fund request is typically important in situations where resources are limited. The sum of requested PPMP for this year was 1,488,000 doubled the amount from the previous year. The NFA projected an increase in procurement as one of its operational goal. The actual electricity bill consumed reached 646,362.23, while the approved budget was 171,301. The power consumption ballooned during this year because of continues operation of mechanical dryers because of high volume of Palay procured that needed to be dried immediately for preservation and prevent spoilage that could potentially incur loss of the crop.

Generally, the NFA has high power consumption during the 2nd and 3rd quarters in the year 2019-2021. It is considered by the NFA as the peak season that requires continuous operations of the machineries and equipment for drying and other related activities. It is expected that consumption will increase during these months however, as seen from the table allotted budget remained constant below the expected expenditures on electricity. This resulted to budget deficit and financial problems for the NFA.

To augment the budget, the office rearranges the fund with the same fund account in order to cover up the budget given for a particular expenditure. It is supported with a report realignment of various object of expenses, the office realigns its allotted budget from other

expenses that has more than the required budget in order to meet the actual expenses.

Cost Electrical Equipment using power supply of NFA Sorsogon Branch Office. The findings showed that the Plant and Machinery equipment and the office equipment have the highest wattage of 11,600 for 3 plant and machinery equipment. These include the two mechanical dryers and truck scale. Second highest wattage of 10,816.50 were the office equipment that includes the 43 units of appliances and air conditioning units. The office equipment are used for eight hours a day for five days and the two mechanical dryers has the highest wattage because they are big machines used for drying the palay procured by the agency. The next highest rated kilo wattage is the data processing equipment, these equipment are used for the daily task or reports by the employees like personal computers and printers. On the other hand the electrical equipment used with lowest rated kilowatt/hr are the warehouse equipment. It includes the lightings that mostly are LED lights.

Average Hours of Usage

Findings showed, the LED Bulbs are powered for 12 hours however these fixtures have the lowest wattage. The office equipment are operated for 8 hours, since this equipment are used by the employees frequently. While the data processing equipment runs also for 8 hours these are used only during office hours in processing documents and making reports. The Office Equipment, Data Processing Equipment, and Electrical lightings that includes the air conditioners, personal computers, printers and electrical lightings, have the longest period of running using the power supply because they are being used in the working days and the lightings serves as protection of the stocks and offices during the night. Moreover, during the months of March to May and September to December the two mechanical dryers are being used heavily because of the volume of palay being procured these equipment have to be operate on eight or twelve hours a day in order to finish the hundreds of sacks of palay procured in a day.

Estimated Kw/Hr used per day

It can be gleaned from the findings, the estimated total kw/hr used monthly were, 86.53 kw/hr consumed by the office equipment, 68.21 kw/hr by the data processing equipment and 46.40 plant machinery equipment respectively. The consumption of electrical energy, which is measured in kilowatt-hours (kWh), increases when the amount of electricity consumed by a device or

appliances increases, or when the duration of usage is longer. Office equipment are been used more frequently, resulting in the increase of consumption of electricity. The NFA's equipment are operated on an average of 8 hour on a regular basis. However, during the or procurement season, additional equipment such as machineries and dryers are utilized and extend the operating hours to accommodate the drying of palays and comply with the documentary reports on operations. These tasks increase the usage of equipment hence, increase the consumption of power supply. Added to this account, some of the equipment are not energy efficient that consume more electricity to operate.

Estimated Cost of Consumption.

Results showed the equipment used by the NFA consumed an average of Php47,387.85 per month in 2019, Php41,991.23 per month in 2020, and in 2021 was Php49,030.82 per month. The cost adjusted based from the basic charge of the SORECO II Cooperative as the main power source of NFA. It showed that the consumption cost of the equipment based from its power rate specifications is higher than the actual expenditures in the year 2019, 2020 and 2021 this is because these equipment were not utilized in full capacity during these years. The NFA Sorsogon Office underwent maintenance routine, experienced power outages, and some equipment malfunctioned due to fluctuations. Added to this, in 2020 was the pandemic where restrictions imposed. During this period, the agency implemented a work from home scheme. Due to lockdown low purchase were obtained thus, limited the usage of the plant machinery equipment.

CONCLUSION

Based from the findings the conclusion were drawn. The power consumption of the NFA Sorsogon Branch is higher than its allotted budget. The NFA has various equipment that primarily operated on a regular basis using the conventional power supply distributed by the SORECO II Cooperative. The NFA experienced power interruptions and fluctuations that reduces the efficiency of power supply and service delivery outputs.

RECOMMENDATIONS

Based from the conclusions drawn the following recommendations were given: The NFA Sorsogon Branch office may conduct an energy audit to be able to determine the pattern consumption and identify the areas with high energy consumption. It is also recommended to optimize the power management for equipment by

implementing purchase policy that considers energy efficient ratings in procuring. The NFA Sorsogon Branch may also conduct feasibility study on integration of renewable energy and conduct energy conservation awareness among the employees and the clientele.

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