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Effects of Increase in Electricity Tariff on Business Profitability: A Case of Ibom Hotel and Golf Resort, Uyo-Akwa Ibom State (2010-2023)

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Abstract

The concern about rising cost of input prices is a major concern to hotel managers across the globe. In this study, we examined the effects of electricity tariff increase on Ibom hotel and Golf Resort's business profitability in Nigeria. Data for the study was mostly secondary extracted from the company's annual reports and the company's engineering department for the periods (2010 – 2023). We applied transcendental logarithmic function to analyze our data and found that, a 10% increase in electricity tariff in Nigeria will dipped Ibom Hotel's profitability by 41% approximately and highly statistically significant at an instance and that continued increase in electricity tariff in Nigeria will have a reducing spiral effect of approximately 21% continually in Ibom hotel's profit and statistically significance at one percentage level. We made recommendations based on our findings that reviewing policy on increase in electricity tariff in Nigeria downward will give Ibom hotel and other hotels both in the state and the country time lag to adjust to the energy cost increase and sustain the profit of the hospitality industry over time.

Keywords

Profit function, Ibom Hotel, Uyo, Electricity Tariff, Profit, Nigeria.

1. Introduction

The Nigerian gas and power sector(s) have undergone various reforms in the past months, from the introduction of the Electricity Act 2023, the updated 2023 Mini-grid regulations; to the most recent developments - the increase in the domestic base price for natural gas for power generation companies (GenCos) for 2024, from US$2.18 per million British thermal units (MMBTU) to $2.42 per MMBTU, which represents about 11% increase in the price of gas for power generation; as announced by the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), alongside a change in electricity tariff via a tariff hike for Band A customers, based on a revision to the Multi-Year Tariff Order (MYTO) for distribution companies (DisCos), as issued by the Nigerian Electricity Regulatory Commission (NERC), in the supplementary MYTO for DisCos. These changes present a flurry of implications for the Nigerian economic landscape who largely depends on electrical energy for businesses and mostly supplemented by other energy sources, notably the AGOs or diesel

from the petroleum subsector in case of outages. The Nigerian Electricity Regulatory Commission reported that power distribution in 2021 averaged 4,094.09 megawatts (MW), despite available generation capacity of about 8,000 MW. Sector reforms should occur for a plethora of reasons, ranging from promoting competition, attracting investment, decarbonizing the electricity supply, enhancing energy security, improving affordability, and increasing resilience.

The Nigerian economy generally has been buzzing with the recent announcement by the Nigerian Electricity Regulatory Commission (NERC) raising electricity tariff for band 'A' customers from an average of N68/kwh to N225/kwh, a staggering 300% increase. This increase was aimed at reducing the estimated N2.9 trillion electricity subsidy in the 2024 fiscal year; due to cashflow constraints resulting from the Federal Government's inability to pay its obligations (Ehanmo, 2024). As Figure 1 shows, electricity subsidy payment for Nigeria was on the rise in recent years. While the new tariff regime aims to create a fairer system where customers pay for the reliability of power they receive, the hike has the potentials for unintended outcomes in the economy generally and the services sector in particular.

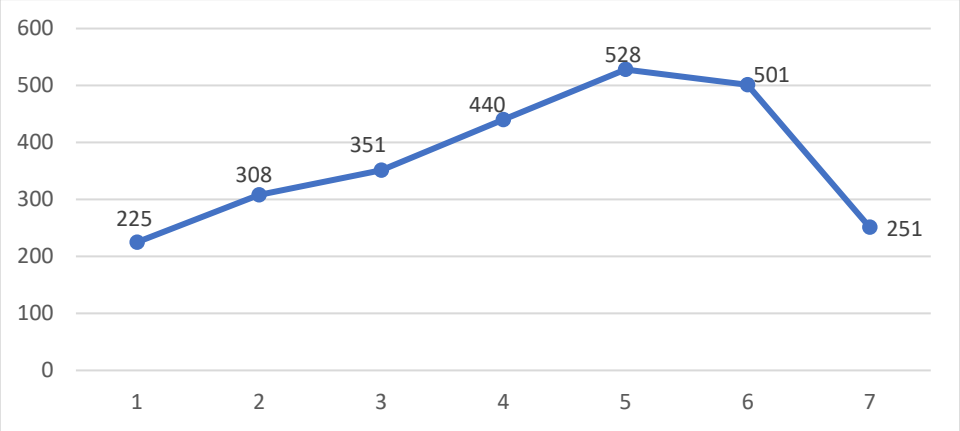

Figure 1: Nigeria, Subsidy payment
Source: Authors, extracted from Ehanmo, (2024).

Electricity consumption is an important element in hospitality production value chain but with the rising cost of energy products globally, hospitality managers are now faced with energy cost management challenges. According to Oluwadare (2024), power is the cornerstone upon which modern civilization, commerce and critical services rest. Today, electricity is the main source of power, especially to an average Nigerian and its absence will likely disrupt a lot of businesses and even households.

However, it is important to account for total consumption cost and to recognize how energy is used for each commodity such as steam, water, air and natural gas. The hospitality engineering departments now focuses their professional attention on how to reduce energy consumption per unit of production, technically called energy efficiency management. Energy efficiency management focuses on minimizing the amount of energy used to achieve the desired outcome in the production process for profitability.

Energy used in various sectors of the economy varies widely among countries and depends basically on, among other things, the level of technology used, the age of plants, the sector concentration, the capacity utilization and the structure of subsectors (Oyedepo, Adaamola, Odunfa and Aremu, 2015). In the hospitality sector, energy is used for a wide range of activities, ranging from lighting, steaming, food processing and preservation, laundry services, space conditioning among others. Therefore, a lot of energy consumption is expected to occur in the hospitality sector often unnoticed by mere onlookers that will soar up energy cost and dipped profits.

In the hospitality industry, overall rooming revenue has increased in Africa in recent history from 1.9% witnessed in 2017 to 7.4% in 2018 with Nigeria making a 7.2% growth in rooming revenue within the same period. The improved position for Nigeria was solvent by larger market size, an increase of 20% over relative market sizes in other African countries with accumulated increase of about 12% by 2023 (Price Water Coopers, 2019). Such increases are expected to grow revenue from US$252 million in 2018 to US$445 million in 2023.

To achieve energy efficiency, scholars have specified energy management principles that focuses on consumption reduction. Notable among them are the historical energy use review, energy audits that are reviews of current practices, computer simulations and availability studies, aggregation of energy uses, and energy conservation (Eastop and Croft, 1990). In view of the fact that there are continually increasing fuel costs, energy efficiency studies for profitability are rapidly becoming more important (see for instance Oyedepo, Adaamola, Odunfa and Aremu, 2015; Oyedepo and Aremu, 2013) and little of this count exist for the Ibom Hotel and Golf Resort, Uyo. This study exists for the purpose.

The rest of the paper is structured as follows: section 2 examines related literature on the subjects; section 3 reviews the profit function and presents the methodology adopted for the study; section 4 presents the analysis and results of the study and section 5 concludes the paper with useful recommendations.

2. Literature

2.1 The Hospitality Environment in Nigeria

Nigeria is primarily a business destination with the MICE (meetings, incentives, conferences and exhibitions) sector being the principal driver (Price Water coopers, 2019). Most of the hotels are situated in major cities like Lagos, Abuja, Port Harcourt although few are scattered in other state capitals notably the Ibom Hotel and Golf Resort in Uyo, Akwa Ibom State. Strategic brands likely to see in the Nigerian hospitality industry are Le Meridien, Marriott, Radisson, Hilton, Best Western, Sheraton, Novotel, Westin and Movenpick among others. This is expected to raise the rooming usage in Nigeria from 8.4% in 2013 to 10.3% in 2019 and further to 14.3% in 2023 due mainly to a rise in tourist arrival rate from 993 on the average to 1426 and further to 1575 within the same period.

The revenue growth from rooming in hospitality business for Nigeria has increased over the years now. As shown in Table 1.0, rooming revenue for Nigeria continues to grow steadily from 2015 to 2023. From 2013, rooming revenue fell from US$ 117 Million to US$ 98 Million in 2015, attributed to economic recession the country went into within the period. However, from 2015 onward, the rooming revenue from the country rose steadily from US$ 98 million to a peak of US$ 320 million in 2023. Overall, a projected 12% increase in rooming revenue is forecasted for Nigeria in years to come. Within the period, the electricity tariff was barely N63/kwh for band 'A' consumers.

Table 1.0: Rooming Revenue for Nigerian Hospitality (USD million)

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
RR US$ M	117	108	98	104	112	134	154	176	237	267	320
Percentage Change	13.6	-7.7	-9.3	6.1	7.7	19.6	14.9	14.3	34.7	12.7	19.9

Source: Pricewater Coopers, 2019.

2.2 The Hospitality Environment in Uyo, Akwa Ibom State

The hospitality industry in Akwa Ibom State is experiencing a phenomenal growth that is fast assuming the nature of a revolution. This growth is in tandem with the fact that the state is emerging as a tourism and hospitality destination not only in Nigeria, but also in the West African sub-region. Over 2,000 hotels have so far been registered in the state, to ensure standardization of operations, in order to make them function in line with international best practices. Incidentally, it is only Ibom Hotels, Uyo and Four Points by Sheraton, Ikot Ekpene operated under 5-star and 4-star respectively, which are directly owned by the state government. Other popular brands that drive the hospitality industry in Akwa Ibom State are Majesty-Realm Hotels, Luton Park Hotels, De Castle hotels, Monty Suites hotels, Royalty Realms Hotel, Signature by Royalty hotels, Dasilva hotels, Watbridge hotels among others. These are privately owned hotels in Uyo.

In terms of revenue generation to Akwa Ibom State, it is estimated that hotel businesses in Akwa Ibom State earned the government seventy-five million (N75,000,000.00) naira annually (Akwa Ibom State Government, 2023). Thus, there is huge prospect for hotels business growth in Akwa Ibom State.

2.3 Electricity Tariff in Nigeria

Over the years, the Nigerian government has felt that the electricity tariff rates paid by Nigerians has not truly reflected the operational cost and returns on investment to energy producers. As a result, representatives of the government and major players in the industry have always agitated for a better electricity price regime in the Nigerian energy sector. Pursuant to this, the Nigerian government set up a regulatory agency - the Nigerian Electricity Regulatory Commission (NERC) in 31st October, 2005, to oversee all such complaints and make the energy sector in Nigeria to be investment friendly-driven. The establishment of NERC was the direct result of a genuine desire to transform the electricity supply industry into a market-based industry, in line with the Federal Government's reform agenda for the country's economic, industrial and social development. Thus, the NERC was established to facilitate the introduction and management of competitive, safe, reliable and fairly priced electricity in the country.

In recent years, electricity tariff adjustment has witnessed tremendous upward trend in Nigeria. Table 2.0 provides a breakdown of electricity tariff per kilowatt hour (kwh) in Nigeria by NERC from 2010 to 2024.

Table 2. Electricity Tariff Movement in Nigeria (2010-2024)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
₦/kwh	9.70	13.40	17.15	22.08	22.74	22.74	35.90	46.35	48.39	48.39	48.39	52.60	57.12	68.68	225

Source: Nigerian Electricity Regulatory Commission, 2017.
Published Electricity Bills, Ibom Hotels (2010 – 2024)

As Figure 2.0 shows, the trend growth of electricity tariff in Nigeria was fair from 2010 with only ₦9.70/kwh. However, in 2015, the trend kink upward ₦22.74/kwh and was acceleratively smoother until 2017 when the electricity tariff rate was ₦46.35/kwh. The trend of electricity tariff in Nigeria has remained fairly constant with unnoticeable growth from 2017 to 2023 when the trend kink upward again with ₦68.68/kwh electricity tariff. In year 2024, a surprise jump of electricity tariff to ₦225/kwh was announced and effected by NERC. One could only imagine what the astronomical rise in electricity tariff in recent years in Nigeria will do to business profitability generally, and more so, the Ibom Hotels in Uyo.

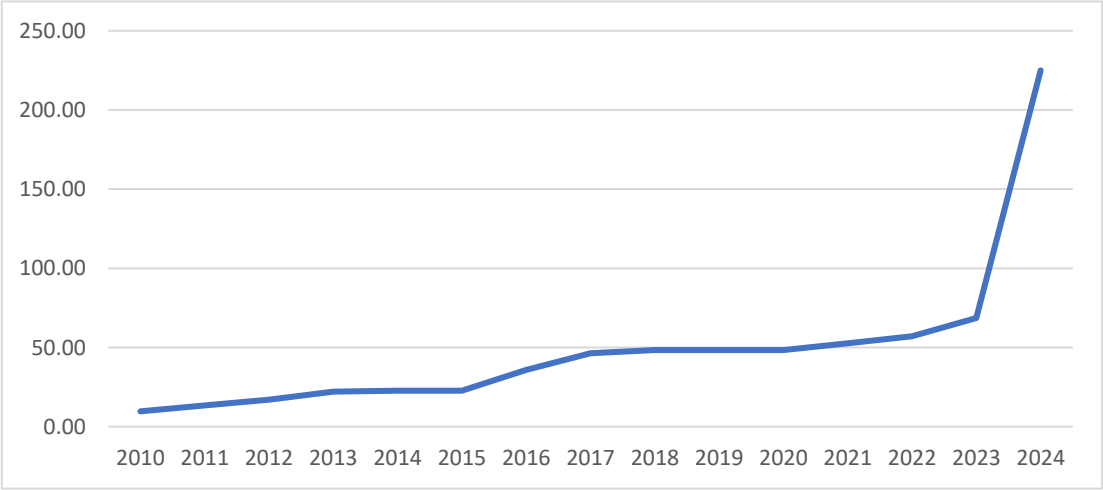

Figure 2.0: Trend of Electricity Tariff in Nigeria, 2010-2024
Source: Authors

2.4 The theory

The theoretical construct of the electricity tariff increase-profit performance of the hospitality industry follows intuitively from the energy use behaviour of firms. Whereas the traditional production functions that give credence to majorly labour (*L*) capital (*K*) and technology (*A*) as perpetual ingredients for growth has been refuted in the literature for exclusion of other necessary factors like energy, energy use theories of growth are now gaining scholarly importance (see for instance Adelegan and Otu, 2020; Ekong, Isaac and Isaac, 2021; André, Costa, Demmou and Franco, 2023). Ekong, Isaac and Isaac (2021) showed that energy use is inconsequential in the production function with the following expression.

$$y_t = AL_t^{\alpha} K_t^{\beta} E_t^{\partial} \qquad (1)$$

Where E_t^{∂} is captures the energy consumption growth nexus with its associated parameter; L_t^{α} captures the quality and use of human resources in production; K_t^{β} is a measure of capital resources in the production chain; A measures technology innovations associated in repeated production experiences and (y_t) is the production output. The subscript (t) is a time subscript and (α, β, δ) are incremental impact of the factors of production on output (y_t). Ekong, Isaac and Isaac (2021) proposes a sectoral output performance cum energy use of the form

$$y_t = AL_t^{\alpha}(sec) K_t^{\beta}(sec) E_t^{\partial}(sec) \qquad (2)$$

Where (sec) is only a sector specific effect in the energy use/sector performance relationship. In this case, (sec) is the hospitality industry in Akwa Ibom State with Ibom Hotel and Golf Resort as proxy.

Because of the importance of energy usage in the production chain, many scholars have given attention to the effect of its rising cost on not just the production chain, but the economy in general. For instance, Bassey and Ekong (2019) showed that rising energy prices drove the general price level for the Nigerian economy between 1980 and 2018. Similarly, in a panel of 21 countries around Europe, André, Costa, Demmou and Franco (2023) showed that in one year, over 0.4% loss in capacity utilization and production of firms in the economies was as a result of energy price shock for the European region between 1995 and 2020. Although these evidences are sectored sensitive, they however, suggest that sectors with more energy use intensity like the hospitality sector is more likely to experience high productivity and profitability impact from energy price shock across regions. With reference to equation (2), rising energy cost weaken the incremental powers of (δ) such that equation (3) evolves.

$$y_t = AL_t^{\alpha}(sec) K_t^{\beta}(sec) E_t^{-\partial}(sec) \qquad (3)$$

Where $(-\delta)$ is the decreasing impact of rising energy cost on production output.

2.5 Empirical Review

Umar and Silikwa (2020) investigated the state of efficient energy (electricity) use in relation to income earned and profit recorded in 10 hotels in Mubi, Anambra state, north-east Nigeria. The survey, which was conducted in July 2018 recorded over 96% response successes. Mubi is known for its commercial conglomeration in cattle exchange amidst other agricultural exchanges. When the respondents' information were examined, they found that over 12% of hoteliers net income was spent on energy related operational cost yearly in 6 hotels; as 2 hotels faced between 9-12% energy related operational cost and only 1 hotel has energy related operational cost which was relatively low (3-6%). They argued that although it was difficult for hoteliers to estimate correctly electricity use from appliances, many hotels in Mubi may have spent more than 12% of their profit in electricity operational cost yearly. They thus suggest for government intervention in promoting energy conservation policies in the hotel industries as a way of planning a pathway for future energy cost reduction.

Oyedepo and Aremu (2013) surveyed energy audit of Food processing industries and Distillation and Bottling Company in Ota, Ogun State, Nigeria to demystify major sources of energy used in these companies to enhance energy saving practices for better return on investment. Data collected for the study was based on on-the-spot assessment and other primary data collating techniques. Analyzed through the energy used principles, they found that among a wide variation of end-use electricity consuming equipment, electric motors were the major consumer of electrical energy, accounting for 40-47% of total electric energy. When the two industries were lumped together, they showed that fuel energy expended in operating the generating set, boilers or heaters in the industries rose significantly, accounting for more than 65% of the total energy used. Clearly, this had the tendency of reducing the company's annual returns on

investment, necessitating their recommendation for efficient energy usage in these industries. When Oyedepo, Adaamola, Odunfa and Aremu (2015) embarked on a similar study for companies in southwestern Nigeria, their outcome were quite similar, allowing them to conclude that more energy was used in producing a unit output in the production value chain for the industries and suggested efficient energy use practices for the industries thereafter.

Bassey, Oduneka and Ikpe (2022) examined the impact of electricity consumption on the delivery of industrial sector in Nigeria, relying on times series data generated from 1981 to 2019. Applying Fully Modified Ordinary Least Squares technique of analysis to the data, they found that a unit rise in industrial electricity consumption grew industrial performance by 9.4%. When compared with similar countries around the world, they showed that Nigeria's growth rate was far below other countries. While attributing the poor industrial performance to poor electricity supply in the country, they recommended well rounded energy mix options through government policies to complement the existing energy sources available in Nigeria, as well, as other renewable energy resources for improved industrial sector performance as well as for domestic utilization.

Olaoye and Talabi (2018) examined the case of electricity tariff and business performance. The study was also interested in the impact cost of self-generated power supply. The study cut across three major sectors of the economic life of Ondo state Nigeria namely, the services sector, the manufacturing sector and the wholesale and retail sub- sector. Relying on ordinary least squares estimation technique for the transformed data, they showed that high electricity tariff and self- generated power from generators seriously affected firm's performance in the sectors selected. To be specific, while over 95% of changes in business performance is caused by tariff differentials in Ondo business environments, 75% of such changes are due cost on self-generated electricity, the study reports. They, thus agitated for electricity tax relief for businesses in Ondo state to cushion the effect of electricity tariff differentials on business performance in Ondo state going forward.
For Kolade and Ifeanyi (2024), the electricity tariff hike is sure to generate ripple effects on the general economy as higher output cost, and prices of goods and services are already on the rise. Although the power sector will benefit, the larger impact on the economy will be dampening.

For Sanni (2009), the effect of electricity hike on hospitality businesses of a top-bottom approach. The effect spills from the economy generally to the hospitality industry. In a study of the Nigerian economy from 1980 to 2006 in an ordinary least squares estimation, he found that the correlation between the economy and that hospitality businesses is purely positive albeit minute (0.0033 approximately) but statistically significant at one percent level of significance. He therefore argued that whenever there is electricity hike, the economy adjusts itself by shrinking in financial adjustment and transferred the reaction on hotel businesses and ultimately dipped their profit. His recommendation was for the government to continue to maintain a stable and growing economy for hospitality businesses to grow sustainably.

Ekechukwu and Sam-Amobi (2008) investigated the energy consumption pattern of hotels in southeast Nigeria using analysis of variance (ANOVA) to determine energy usage growth for the region. Their results showed that 100% of the hotels surveyed relied on electricity energy from the national grid and self-generated energy. They further found that increasing energy cost increases the hotels usage cost and reduce revenue for the region. Because of the worsening effect of increasing electricity cost on hotels and general hospitality businesses, Shehu, Inuwa, Husseini and Yakubu (2019) suggested energy management strategies for sustainable energy management for hotels in Abuja, Nigeria. They relied on analyzing technique of descriptive studies and pearson correlative moments. Findings suggest that hoteliers in Abuja vary in their energy conversation methods. In fact, energy conservation target and energy audits gained 3.34% to 3.36% while installing centralized energy management systems, on- site renewable energy generation and smart digital thermostats installation gained about 1.57% to 2.15%.

André, Costa, Demmou and Franco (2023) examined a panel of 21 countries across Europe with particular attention to the effect of rising energy cost on manufacturing and construction subsectors of these economies from 1995 to 2023. In the construction of energy prices across countries, they paid attention to the country-specific characteristic and structural complexities in arriving at the final retail energy prices. Their result suggests that raising energy price by 5% will reduced firm's productivity strength by 0.4% in lagged one year. Equally, if there are to be gains in rising energy cost, firms will diversify delivery channels, employing more to produce more and woo in returns capable of producing long term gains of say 0.9% after nine years. They therefore argued that higher expenditures on energy may have rendered the core activity of many firms unprofitable for European firms in 2022 with smaller firms suffering disproportionately in the quantile distribution. The study argued that energy price cap for smaller businesses in Europe has been adopted as a way of mitigating the rising negative impact on firms.

In the same line of thought, Adie, Inim and Udo (2019) investigated the effect of electricity tariff increase on the performance of Small and Medium Scale businesses in North Central Nigeria from 2014 to 2018. Sampling over 384 SMEs stratified in a Taro Yamane's formula through questionnaire administration and analyzed in multiple regression, they showed that electricity tariff increase was positive on SMEs performance in North Central Nigeria. In their recommendation, they argued that there is no need for tariff payment evasion since SMEs in North Central Nigeria can still delivers on their returns on investment within the study period. The study strongly suggests SMEs reliance on Power-Factored tariff as against Two-Part tariff as the tariff plan possess strong potentials for SMEs growth.

The experiences of Sebsibie, Tesfamichael, Beyene, Mulugetta and Trace (2022) on how electricity tariff increase affect business enterprises and consumer responses in Ethiopia, is particularly ratifying on the general effect and responses of end-users of electricity in developing countries. In the wake of 2018 and 2021, the energy supplied reforms of Ethiopia has made it that the energy use landscape of the SMEs in Ethiopia changed. The reforms produced two faces of end-energy-users. SMEs located in clusters and industrial zones and those located outside these areas with the former having improved access to energy supply quality and information than the latter. Using micro qualitative datasets, they showed that this energy-reform-dichotomy produces also cost and opportunities challenges capable of dipping returns accruals to SMEs in Addis Ababa between 2018 and 2021. Firms located outside clusters fair badly in energy cost implementation and alternatives as well as energy stabilization. In their recommendation, they argued for not just energy policy reversal but also multiple energy sources in mitigating increasing energy cost effect on SMEs in Addis Ababa.

Anyaka and Edokobi (2014) argued that the Nigerian case was to key into the vision 2020 global growth arrangement. However, what the government achieved in the case of Nigeria was high energy price tariff with much lower energy output to the end-users. For the Nigerian case energy prices was increase with dilapidated supply equipment, thus worsening the present situation than before. This impact is worth examining in the hotel industry in Uyo, Akwa Ibom State, using the Ibom Hotel and Golf Resort as a case study.

3. Methodology

3.1 Study Area

The study area of our work is Ibom Hotel and Golf Resort, Nwaniba Road, Uyo, Akwa Ibom State, Nigeria located between latitudes 4° 32' and 5° 33' north and longitudes 7° 25' and 8° 25' east. The hotel is 15 minutes' drive from the state capital, Uyo. It is situated on a 174 hectares of land bounded by rich palm forest vegetation. The hotel is bordered by the marina tributary to the east that emptied into the Akwa/Cross river in Cross River State. Incidentally, it is the only Five-star hotel in the state. Located on the fringe of Nwaniba beach, a serene coastal community in Uruan, Ibom Hotel and Golf Resort is a wonderland in a class of its own. The multi-million naira magnificent hotel complex sitting on a vast expanse of land is of international standard and an architectural master piece. This 5-Star hotel, the Golf Course, the marina and the construction of access road to the facilities are some of the key projects embarked upon by the Akwa Ibom State Government to boost the tourism sector of the states' economy. This is a new leisure tourism destination on the South-south region of Nigeria, located only 25 minutes' drive from the Ibom International Airport at Okobo. Currently, the hotel is managed by the state government domiciled under the ministry of Culture and Tourism and consists of 14-point facilities. These include 120 exquisite/standard bedrooms, 3 blocks of apartment suites with 60 rooms, 7 chalets of two and three bedrooms each, 4 large conference rooms with up-to-date gadgets, a standard swimming pool complex, 2 numbers each standard tennis and squash courts, 18-hole world-class golf course which the lush greens adds to the peace and serenity complemented by its original atmosphere, in addition to the practice pitch, and marina beach water front resort with tourist boat relaxation and leisure facilities. By rooming arrangement, Ibom Hotels has 163 spacious rooms and suites with the following configuration:

i) 60 Deluxe rooms
ii) 70 Executive rooms
iii) 20 Executive suites
iv) 2 Diplomatic suites
v) 4 2-bedroom chalets
vi) 3 3-bedroom chalets

This beautiful edifice is the pride of Akwa Ibom State and is believed that the hotel would set up a powerful synergy with the international Airport at Okobo. Aside from the rental value accrued to the government, Ibom Hotels has generated 265 employment opportunities to the citizens less 2 international staff and over 300 other employees at casualized capacities.

3.2 Data for the study

The study used reported secondary data of electricity bills for the hotels and annually generated income for the hotels from 2010 to 2023. All data were extracted from the hotels' annual account reports of various years and the energy bills were gotten from the engineering (Maintenance) department of the hotel. In determining other factors in electricity tariff increases in Nigeria, we relied heavily on the components provided by the Nigerian Electricity Regulatory Commission (NERC) (2017). According to NERC, reviews take into account the current exchange rate (exc_t) and the reigning inflation rate (Inf_t). These control variables were sourced from the Central Bank of Nigeria's Statistical Bulletin (CBN) 2023.

3.3 Estimation technique

3.3.1 The profit function

The profit function gives the maximal amount of profit for given input and output prices with given technological possibilities. As Kutlu, Liu and Sickles (2019) puts it, a profit function are twice differentiable functional forms that are based on a quadratic form. In its simplified form, the profit function is expressed as follows:

$$\pi(p, w, u)_t = \pi(w, pe^{-u}) \qquad 1$$

where p is the output price, w is the input price, and $e^{-u} \leq 1$ is a measure of technical inefficiency. In a stochastic frontier form, our profit function reduced to

$$In(\pi + \theta)_t = \sigma_t + x_t'\beta - \mu + \vartheta \qquad 2$$

Where x_t is a vector of frontier variables, which does not contain the constant, α is the constant term; $\mu \geq 0$ is the one-sided term that captures the profit inefficiency; ϑ is the usual two-sided error term. The smaller values of μ indicates that the productive unit is profit efficient, and $\mu = 0$ means that the productive unit becomes fully efficient. The standard stochastic frontier models assume that μ^*, ϑ and (x_1', x_2') are all independent from each other (Kumbhakar, 2001).

To estimate the profit function, a transcendental logarithmic (translog) function popularized by Christensen, Jorgenson and Lau (1973) is used. The model allow for greater flexibility in measuring inputs relationships in the profit function compared to other traditional measurement techniques and have the ability to provide formulas for input's elasticities, in a more convenient manner.

We specify the translog functional model as;

$$In\,\pi_t = \partial_0 + \partial_1 \sum_0^k In\,X_{it} + \frac{1}{2}\partial_2 \sum_0^k In\,X_{it}^2 + \partial_3 \sum_0^k In\,X_{it}X_{jt} + u_t \qquad 3$$

Where, π_t *= profit for the hotel;* X_t *= independent regressors in this case cost of electricity for the hotels and others factors determining electricity tariff and* $X_i \neq X_j$ *;* U_t *= error term;* ∂_1, ∂_2 and ∂_3 are unknown system parameters to be estimated.

The joint impact of electricity tariff increase and its determinants on profit performance of Ibom hotel and Golf Resort will be determined by ∂_3. Our study is particularly interested in ∂_2 which captures the correlative impact of rising electricity prices with itself over time, brought about by tariff increases on the hotel.

In determining other factors in electricity tariff increases in Nigeria, we relied heavily on the components provided by the Nigerian Electricity Regulatory Commission (NERC) (2017). According to NERC, reviews take into account the current exchange rate (exc_t) and the reigning inflation rate (Inf_t).

It was not difficult to determine the total parameters to be estimated in our profit equation if we rely on equation 4;

$$P_{i,j} = \frac{n\,(n+3)}{2} \qquad 4$$

Where, $P_{i,j}$ is the parameter estimate for variable *i* or *j*; and *n* is the number of variables in the system. Expanding equation 3 to our desired purpose, we have;

$$In\pi_t = \partial_0 + \partial_1 Inp_t + \partial_2 Inexc_t + \partial_3 InInf_t + \frac{1}{2}\partial_5 Inp_t^2 + \frac{1}{2}\partial_6 Inexc_t^2 + \frac{1}{2}\partial_7 InInf_t^2 + \partial_9 Inp_t Inexc_t + \partial_{10} Inp_t InInf_t + \partial_{11} Inexc_t InInf_t + u_t \qquad 5$$

One key concern with the estimation of translog functions has to do with the issue of collinearity of the interacting variables. At the moment, the literature provides two options in dealing with the issue. First, Pavelescu (2011) and Gujarati (2004) suggested estimating single variable equation for all variables in the system. However, as variables increase, the single equations become too numerous to content. Second, Umar, Girei and Yakubu (2017) and Gujarati (2004) have showed that the issue of increasing single equations can be handled by Maximum Likelihood Estimation (ML) and is applied in this study.

Translog analysis of the tariff increases on hotels' profitability allows us to determine the cumulative effect of change in a particular price factor on hotel's profit using the marginal product analysis thus;

$$\frac{\partial \pi}{\partial p_{i,j}} = \alpha_i + \sum_{j=1}^{n} \beta_{i,j}\, In\, p_{i,j} \qquad 6$$

We relied on the stationarity powers of DF-GLS in analyzing the stationarity of our variables. The DF-GLS test also possess good size and power properties (Elliot. Rothenberg and Stock, 1996; Aziakpono and Wilson, 2013). The t-statistic is generated from the parameters gotten from the following equation;

$$\Delta y_t^d = \vartheta y_{t-1}^d + \delta_1 \Delta y_{t-1}^d + \ldots . + \delta_p \Delta y_{t-p}^d + \mu_t \qquad 7$$

Where,y_t^d is the detrended data series; Δ is the difference operator; $\vartheta, \delta_1, \delta_p$ are parameters to be estimated and μ_t is the error term.

4. Data Analysis and Discussion of Findings

Table 3.0 presents the descriptive properties of the variables for the study. It shows that all variables were positively skewed with exchange rate mostly skewed. Equally, all variables were normally peaked with electricity tariff (p_t) mostly flat. All variables in the system were multivariate normal.

Table 3. Descriptive properties of the variables

	π_t	p_t	exc_t	Inf_t
Mean	1.19E+09	36.68786	283.3721	13.82357
Median	1.01E+09	41.12500	279.6450	12.72500
Maximum	2.24E+09	68.68000	638.7000	24.70000
Minimum	2.69E+08	9.700000	149.7000	8.060000
Std. Dev.	5.60E+08	18.50953	141.1554	4.668104
Skewness	0.718803	0.034283	1.096134	0.823815
Kurtosis	2.682945	1.723800	3.756219	3.106559
Jarque-Bera	1.264220	0.952810	3.137111	1.590188
Probability	0.531469	0.621012	0.208346	0.451539
Observations	14	14	14	14

Source: Authors

Table 4.0 presents the correlation matrix of the variables for the study. Clearly, all variables were positively correlated with a more-stronger correlation existing between inflation (Inf_t) and exchange rate (exc_t). A much weaker correlation was witnessed between electricity tariff (p_t) and Ibom Hotel's profit (π_t).

Table 4. Correlation of the Variables

	π_t	p_t	exc_t	Inf_t
π_t	1			
p_t	0.44879	1		
exc_t	0.59572	0.93522	1	
Inf_t	0.58899	0.69883	0.83296	1

Source: Authors

Table 5.0 presented the stationarity properties of the variables for the study. As Table 5.0 shows, all the variables were stationary at first difference except electricity tariff that was stationary at levels. Generally, most of our variables showed stationarity at one percent level of significance.

Table 5.0: Unit root test

Variables	DF-GLS
π_t	-2.274191
$\Delta\pi_t$	-5.774220***
Inf	-2.978211*
ΔInf_t	-3.565037
exc_t	0.766537
Δexc_t	-2.516358**
p_t	-3.978890***

Note: Δ denotes the difference operator

***, **,* denotes significance at 1, 5 and 10 percent respectively

Source: Authors

Taking recourse to Equation 3, we present the result of the effect of electricity tariff increase on the profitability of Ibom hotel and Golf Resort business below. As the result shows, negatively strong relationship exists between electricity tariffs and the profitability performance of Ibom Hotels, Uyo. Specifically, a 10% increase in electricity tariff in Nigeria will dipped Ibom Hotel profit by 41% approximately and highly significant at an instance.

What is more worrisome is if the tariff increase becomes more spiral. As our result shows, such an effect generate still stronger negative effect on Ibom hotel's profitability. Still relying on a 10% scale, continued increase in electricity tariff in Nigeria will have a reducing spiral effect of approximately 21% continually in Ibom hotel's profit and statistically significance at one percentage level. Based on the recent electricity tariff increase in which the jump was over 300%, the indication is that Ibom Hotel's profit will sure dipped over time by 630%. This will be dampening to Ibom Hotels and Golf Resort and the general hospitality business in Akwa Ibom State in general.

$$In\pi_t = \partial_0 - 4.09688^{***} Inp_t + 7.482977^{***} Inexc_t - 2.553582^{**} InInf_t - 2.108472^{***} Inp_t^2 + 3.854323^{***} Inexc_t^2 - 1.391521^{**} InInf_t^2 + 2.96984^{***} Inp_t Inexc_t - 7.06672^{***} Inp_t InInf_t + 4.51313^{***} Inexc_t InInf_t + u_t$$

Our result above also shows other interesting outcome to consider for Ibom Hotel and Golf Resort's growth. For instance, a favourable exchange rate system will improve the profit situation of the hotel. Equally, a weak inflation regime may reduce Ibom Hotel's profitability situation and statistically significant at 5% level of significance. What may raise serious concern is the combined effect of the explanatory variables in the study. As shown in our results, a combined impact of electricity tariff increase and rising level of general prices in the economy will further reduce the profitability of hospitality business as witnessed in the case of Ibom Hotel and Golf Resort. When this happened for Ibom Hotels, the effect was 71% profit loss in the years under review.

For policy therefore, we recommend government price ceiling system of pricing for inflation control in Nigeria. Furtherance to electricity tariff system in Nigeria, we recommend moderating electricity tariff increase. What this means is that electricity tariff increase should not be too high at a time and it should be timed say, in every three to five years interval just like the minimum wage arrangement. This will give the hospitality industry and indeed all businesses adjustable time lags to electricity tariff increase that will stabilize business profits and good returns on investment.

5. Conclusion and Recommendations

The study examined the effect of electricity tariff increase in Nigeria on Ibom hotel's business profitability. Data for the study was mostly secondary extracted from the company's annual reports and the company's engineering department for the periods (2010 – 2023). After a careful explanation of the profit function on a stochastic frontier apparatus, we applied transcendental logarithmic function to analyze our data. The result of the study showed that, a 10% increase in electricity tariff in Nigeria will dip Ibom Hotel's profit by 41% approximately and highly significant at an instance and that continued increase in electricity tariff in Nigeria will have a reducing spiral effect of approximately 21% continually in Ibom hotel's profit and statistically significance at one percentage level. We made recommendations based on our findings that government should review policy on electricity tariff increase downward, while considering the well-being of an average Nigerian. While considering an increase in the future, it should not be too high but rather, electricity tariff increase should be done with all the citizenry in mind. It is hoped that moderating electricity tariff increase in Nigeria will give Ibom hotel and other hotels in the state and in the country time lag to adjust to the energy cost increase and sustain the profit of the industry over time. More than that, hospitality industry in Akwa Ibom State should consider alternative energy sources as an option in mitigating rising electricity tariff in Nigeria in succeeding years. Also, proper macroeconomic management can mitigate the effect of electricity price shocks on hoteliers in Uyo metropolis. As our study shows, rising inflation dipped hotel's profitability by 2.6 % approximately at an instance impact. Clearly then, controlling the general price level leads to boosting hotel's profitability in time lagged.

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Appendices

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Annual Utility Data from Ibom Hotel and Golf Resort, Uyo (2010 – 2023)

2010:

Month	kw/hr	Rate/kw (NGN)	kva	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-10	203220	9.7	2100	2,573,866.00	158,000	117.00	18,486,000.00
Feb-10	101950	9.7	1521	1,426,323.56	161,500	120.00	19,380,000.00
Mar-10	166110	9.7	2200	2,242,435.00	172,500	115.00	19,837,500.00
Apr-10	140420	9.7	1936	1,917,906.96	175,000	123.75	21,656,250.00
May-10	234820	9.7	2202	2,909,492.72	157,000	123.75	19,428,750.00
Jun-10	154130	9.7	1643	1,967,283.48	163,800	165.00	27,027,000.00
Jul-10	176900	9.7	1596	1,715,930.00	119,160	150.00	17,874,000.00
Aug-10	243680	9.7	1579	3,571,505.42	117,780	150.00	17,667,000.00
Sep-10	268080	9.7	1331	3,297,384.00	205,400	150.00	30,810,000.00
Oct-10	115560	9.7	1500	1,467,112.00	195,700	145.00	28,376,500.00
Nov-10	69510	9.7	1700	1,472,893.00	0	135.00	0.00
Dec-10	71827	9.7	1850	1,521,989.43	0	140.00	0.00
TOTAL	**1,946,207**	**9.70**	**21,158**	**26,084,121.57**	**1,625,840**	**136.21**	**220,543,000.00**

2011

Month	kw/hr	Rate/kw (NGN)	kva	Total Bill (NGN)	**Diesel(Ltr)**	**Rate/Ltr**	**Cost (Ltr)**
Jan-11	165,240	12.30	1398	2,541,356.04	124,600	112.00	13,955,200.00
Feb-11	252,370	12.30	1780	3,750,949.40	96,340	130.00	12,524,200.00
Mar-11	204,380	12.30	1613	3,100,388.74	161,700	130.00	21,021,000.00
Apr-11	265,470	12.30	1921	3,962,977.58	155,300	165.00	25,624,500.00
May-11	133,250	12.30	1925	2,338,115.50	192,300	170.00	32,691,000.00
Jun-11	99,510	12.30	1721	1,849,473.58	121,600	165.00	20,064,000.00
Jul-11	165,240	12.30	1398	2,541,356.04	132,100	160.00	21,136,000.00
Aug-11	199,560	14.50	904	3,282,855.20	133,600	150.00	20,040,000.00
Sep-11	76,310	14.50	1069	1,565,863.45	150,000	150.00	22,500,000.00
Oct-11	217,700	14.50	1026	3,597,741.30	174,500	148.00	25,826,000.00
Nov-11	177,767	14.50	1026	2,577,618.49	156,213	148.00	23,119,524.00
Dec-11	111,760	14.50	1295	2,170,959.75	156,213	148.00	23,119,524.00
TOTAL	**2,068,557**	**13.40**	**17,076**	**33,279,655.07**	**1,754,466**	**148.00**	261,620,948.00

2012

Month	**kw/hr**	**Rate/kw (NGN)**	**kva**	**Total Bill (NGN)**	**Diesel(Ltr)**	**Rate/Ltr**	**Cost (Ltr)**
Jan-12	214,390	14.50	1639	3,805,311.95	567	140.00	79,380.00
Feb-12	158,460	14.50	1777	3,052,983.85	158,471	160.00	25,355,360.00
Mar-12	169,540	14.50	1230	2,981,141.50	190,000	160.00	30,400,000.00
Apr-12	166,320	14.50	1822	3,186,081.10	198,600	160.00	31,776,000.00
May-12	126,310	15.20	1820	2,735,563.20	191,600	160.00	30,656,000.00
Jun-12	179,910	15.20	1637	3,468,269.92	142,500	158.00	22,515,000.00
Jul-12	263,220	22.80		6,107,727.00	173,400	165.00	28,611,000.00
Aug-12	176,900	21.75		3,953,886.00	130,400	147.00	19,168,800.00
Sep-12	213,450	21.75		4,748,848.50	160,200	140.00	22,428,000.00
Oct-12	201,450	21.75		4,487,848.50	153,100	140.00	21,434,000.00
Nov-12	142,880	21.75		3,213,951.00	161,300	140.00	22,582,000.00

Dec-12	150,750	21.75		3,385,123.50	181,400	148.00	26,847,200.00
TOTAL	**2,163,580**	**17.15**	**9,925**	**45,126,736.02**	**1,841,538**	**151.50**	281,852,740.00

2013

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-13	119,230	21.75	106,311	2,699,563.50	172,100	149.00	25,642,900.00
Feb-13	244,750	21.75	106,311	5,429,623.50	194,450	149.00	28,973,050.00
Mar-13	91,970	21.75	106,311	2,106,658.50	229,930	149.00	34,259,570.00
Apr-13	49,910	21.75	106,311	1,191,353.50	203,100	149.00	30,261,900.00
May-13	81,480	21.75	106,311	1,878,501.00	222,940	147.00	32,772,180.00
Jun-13	77,670	21.75	106,311	1,795,633.50	196,030	147.00	28,816,410.00
Jul-13	77,830	22.40	148,835	1,892,227.00	150,900	145.00	21,880,500.00
Aug-13	172,490	22.40	148,835	4,012,611.00	166,910	147.00	24,535,770.00
Sep-13	100,070	22.40	148,835	2,390,403.00	184,621	155.00	28,616,255.00
Oct-13	102,010	22.40	148,835	2,433,850.00	196,747	165.00	32,463,255.00
Nov-13	102,010	22.40	148,835	2,433,850.00	212,490	155.00	32,935,950.00
Dec-13	180,850	22.40	148,835	4,199,875.00	199,736	151.00	30,160,136.00
TOTAL	**1,400,270**	**22.08**	**1,530,876**	**32,464,149.50**	**2,329,954**	**150.67**	**351,317,876.00**

2014

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-14	83,340	22.40	148,835	2,015,651.00	219,200	150.00	32,880,000.00
Feb-14	92,600	22.40	148,835	2,223,075.00	168,300	150.00	25,245,000.00
Mar-14	165,080	22.40	148,835	3,846,627.00	191,850	149.00	28,585,650.00
Apr-14	152,870	22.40	148,835	3,573,123.00	155,900	148.00	23,073,200.00
May-14	262,730	22.40	148,835	6,033,987.00	144,080	147.00	21,179,760.00
Jun-14	252,340	22.40	148,835	5,801,251.00	178,520	141.00	25,171,320.00
Jul-14	178,630	23.07	148,835	4,269,829.50	138,280	141.00	19,497,480.00
Aug-14	327,910	23.07	148,835	7,713,719.10	129,120	141.00	18,205,920.00
Sep-14	206,610	23.07	148,835	4,915,328.10	156,600	141.00	22,080,600.00
Oct-14	181,350	23.07	148,835	4,332,579.90	167,680	141.00	23,642,880.00
Nov-14	113,650	23.07	148,835	2,770,740.90	160,200	141.00	22,588,200.00
Dec-14	173,540	23.07	148,835	4,152,403.20	109,660	141.00	15,462,060.00
TOTAL	**2,190,650**	**22.74**	**1,786,020**	**51,648,314.70**	**1,919,390**	**144.25**	**277,612,070.00**

2015

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-15	458,680	23.07	148,835	10,730,583.00	111,400	138.00	15,373,200.00
Feb-15	302,910	23.07	148,835	12,565,115.90	130,400	125.00	16,300,000.00
Mar-15	206,800	23.07	148,835	8,625,567.00	184,320	130.00	23,961,600.00
Apr-15	145,370	23.07	148,835	6,107,551.30	143,640	128.00	18,385,920.00
May-15	323	23.07	148,835	156,276.75	196,637	145.00	28,512,365.00
Jun-15	91,855	27.50	148,835	2,600,430.00	158,600	150.00	23,790,000.00
Jul-15	91,855	27.50	148,835	2,600,430.00	98,900	140.00	13,846,000.00

Aug-15	336,590	27.50	148,835	9,405,060.00	118,740	128.00	15,198,720.00
Sep-15	291,290	27.50	148,835	8,159,310.00	165,920	119.00	19,744,480.00
Oct-15	166,570	27.50	148,835	4,729,610.00	169,650	119.00	20,188,350.00
Nov-15	173,500	27.50	148,835	4,920,085.00	138,700	110.00	15,257,000.00
Dec-15	208,360	27.50	148,835	5,878,735.00	137,670	107.00	14,730,690.00
TOTAL	**2,474,103**	**22.74**	**1,786,020**	**76,478,753.95**	**1,754,577**	**128.25**	**225,288,325.00**

2016

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-16	254,330	27.50	148,835	7,142,910.00	157,700	235.00	37,059,500.00
Feb-16	262,050	27.50	148,835	7,355,210.00	142,400	235.00	33,464,000.00
Mar-16	299,150	44.30	148,835	13,252,345.00	204,250	235.00	47,998,750.00
Apr-16	112,450	44.30	148,835	4,981,535.00	183,400	235.00	43,099,000.00
May-16	67,930	44.30	148,835	3,009,299.00	138,000	235.00	32,430,000.00
Jun-16	259,420	44.30	148,835	11,492,306.00	143,700	235.00	33,769,500.00
Jul-16	208,150	44.30	148,835	9,221,045.00	108,300	235.00	25,450,500.00
Aug-16	207,450	44.30	148,835	9,190,035.00	136,600	235.00	32,101,000.00
Sep-16	188,700	44.30	148,835	8,359,410.00	141,400	235.00	33,229,000.00
Oct-16	175,430	44.30	148,835	7,771,549.00	131,220	235.00	30,836,700.00
Nov-16	250,250	44.30	148,835	11,086,075.00	169,300	235.00	39,785,500.00
Dec-16	168,500	44.30	148,835	7,467,208.00	187,700	235.00	44,109,500.00
TOTAL	**2,453,810**	**35.90**	**1,786,020**	**100,328,927.00**	**1,843,970**	**235.00**	**433,332,950.00**

2017

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-17	115,200	44.30	0	5,103,360.00	175,100	185.00	32,393,500.00
Feb-17	92,950	48.39	0	4,497,850.50	147,100	185.00	27,213,500.00
Mar-17	144,720	48.39	0	7,003,000.80	173,200	185.00	32,042,000.00
Apr-17	170,330	48.39	0	8,242,268.70	183,400	185.00	33,929,000.00
May-17	206,300	48.39	0	9,982,857.00	277,753	185.00	51,384,305.00
Jun-17	176,510	48.39	0	8,541,318.90	143,700	185.00	26,584,500.00
Jul-17	163,240	48.39	0	7,899,183.60	96,809	185.00	17,909,665.00
Aug-17	343,770	48.39	0	16,635,030.30	136,600	185.00	25,271,000.00
Sep-17	212,150	48.39	0	10,265,938.50	141,400	185.00	26,159,000.00
Oct-17	316,880	48.39	0	15,333,823.20	131,200	185.00	24,272,000.00
Nov-17	196,020	48.39	0	9,485,407.80	136,400	185.00	25,234,000.00
Dec-17	190,930	48.39	0	9,481,052.70	85,500	185.00	15,817,500.00
TOTAL	**2,329,000**	**46.35**	**0**	**112,471,092.00**	**1,828,162**	**185.00**	**338,209,970.00**

2018

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-18	351,840	48.39	0	17,025,537.60	94,500	234.25	22,136,625.00
Feb-18	251,710	48.39	0	12,180,246.90	72,050	234.25	16,877,712.50
Mar-18	371,930	48.39	0	18,965,492.70	56,655	234.25	13,271,433.75

Apr-18	291,450	48.39	0	14,103,265.50	78,800	234.25	18,458,900.00
May-18	320,810	48.39	0	15,523,995.90	65,200	234.25	15,273,100.00
Jun-18	413,550	48.39	0	20,011,684.50	66,300	234.25	15,530,775.00
Jul-18	426,980	48.39	0	20,661,562.20	100,200	234.25	23,471,850.00
Aug-18	339,400	48.39	0	16,423,566.00	85,200	234.25	19,958,100.00
Sep-18	244,720	48.39	0	11,842,000.80	100,200	234.25	23,471,850.00
Oct-18	191,640	48.39	0	9,273,459.60	70,060	234.25	16,411,555.00
Nov-18	365,240	48.39	0	17,673,963.60	156,240	234.25	36,599,220.00
Dec-18	107,680	48.39	0	18,557,661.79	84,160	234.25	19,714,480.00
TOTAL	**3,676,950**	**48.39**	**0**	**192,242,437.09**	**1,029,565**	**234.25**	**241,175,601.25**

2019

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-19	328,000	48.39	0	15,871,920.00	56,200	235.00	13,207,000.00
Feb-19	483,680	48.39	0	23,405,275.20	51,400	235.00	12,079,000.00
Mar-19	344,600	48.39	0	16,675,194.00	77,800	235.00	18,283,000.00
Apr-19	241,680	48.39	0	11,694,895.00	107,200	235.00	25,192,000.00
May-19	341,250	48.39	0	16,513,087.50	116,700	235.00	27,424,500.00
Jun-19	152,430	48.39	0	7,376,087.70	47,200	235.00	11,092,000.00
Jul-19	285,350	48.39	0	13,808,086.50	44,000	235.00	10,340,000.00
Aug-19	318,410	48.39	0	15,407,859.90	70,300	235.00	16,520,500.00
Sep-19	226,150	48.39	0	10,943,398.50	37,400	235.00	8,789,000.00
Oct-19	262,770	48.39	0	12,715,440.30	65,500	235.00	15,392,500.00
Nov-19	281,130	48.39	0	13,603,880.70	94,200	235.00	22,137,000.00
Dec-19	195,240	48.39	0	9,447,663.60	68,100	235.00	16,003,500.00
TOTAL	**3,460,690**	**48.39**	**0**	**167,462,788.90**	**836,000**	**235.00**	**196,460,000.00**

2020

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-20	336,970	48.39	0	16,305,978.30	72,850	235.00	17,119,750.00
Feb-20	332,090	48.39	0	16,069,835.10	29,100	222.50	6,474,750.00
Mar-20	405,620	48.39	0	19,627,951.80	102,154	222.50	22,729,265.00
Apr-20	205,120	48.39	0	9,925,756.80	27,200	222.50	6,052,000.00
May-20	161,450	48.39	0	7,812,565.50	13,300	222.50	2,959,250.00
Jun-20	223,900	48.39	0	10,812,565.50	9,800	222.50	2,180,500.00
Jul-20	236,110	48.39	0	11,425,362.90	30,500	222.50	6,786,250.00
Aug-20	221,310	48.39	0	10,709,190.90	32,700	222.50	7,275,750.00
Sep-20	209,510	48.39	0	10,138,188.90	38,300	222.50	8,521,750.00
Oct-20	209,065	48.39	0	10,116,656.00	36,700	222.50	8,165,750.00
Nov-20	218,780	48.39	0	10,586,764.20	48,700	222.50	10,835,750.00
Dec-20	208,580	48.39	0	10,502,003.00	35,200	222.50	7,832,000.00

TOTAL	**2,968,505**	**48.39**	**0**	**144,032,818.90**	**476,504**	**222.50**	**106,932,765.00**

2021

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-21	321,290	50.35	0	16,176,951.50	39,500	280.00	11,060,000.00
Feb-21	314,210	50.35	0	15,820,473.50	14,500	280.00	4,060,000.00
Mar-21	343,210	50.35	0	17,280,623.50	69,700	280.00	19,516,000.00
Apr-21	262,930	50.35	0	13,238,525.50	71,050	280.00	19,894,000.00
May-21	287,820	52.18	0	15,018,477.60	30,200	280.00	8,456,000.00
Jun-21	365,000	52.18	0	19,045,700.00	62,100	280.00	17,388,000.00
Jul-21	343,922	52.18	0	17,945,849.96	58,900	280.00	16,492,000.00
Aug-21	385,781	52.18	0	20,130,052.58	83,800	280.00	23,464,000.00
Sep-21	455,167	52.18	0	23,750,614.06	92,023	280.00	25,766,440.00
Oct-21	253,369	53.69	0	13,603,381.61	47,250	280.00	13,230,000.00
Nov-21	429,736	54.18	0	23,283,096.48	52,200	280.00	14,616,000.00
Dec-21	455,496	54.18	0	24,678,773.28	41,600	280.00	11,648,000.00
TOTAL	**4,217,931**	**52.60**	**0**	**219,972,519.57**	**662,823**	**280.00**	**185,590,440.00**

2022

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-22	485,885	54.18	0	26,325,249.30	39,400	690.42	27,202,548.00
Feb-22	507,977	54.18	0	27,522,193.86	38,500	690.42	26,581,170.00
Mar-22	439,906	57.94	0	25,488,153.64	81,200	690.42	56,062,104.00
Apr-22	380,057	57.94	0	22,020,502.58	62,300	690.42	43,013,166.00
May-22	410,378	57.94	0	23,777,301.32	82,800	690.42	57,166,776.00
Jun-22	316,991	57.94	0	18,366,458.54	43,900	690.42	30,309,438.00
Jul-22	381,307	57.94	0	22,092,927.58	35,800	690.42	24,717,036.00
Aug-22	383,583	59.23	0	22,719,621.09	31,700	690.42	21,886,314.00
Sep-22	371,750	59.23	0	22,018,752.50	39,500	690.42	27,271,590.00
Oct-22	385,085	59.23	0	22,690,124.55	37,500	690.42	25,890,750.00
Nov-22	432,706	59.23	0	25,629,176.38	32,000	690.42	22,093,440.00
Dec-22	442,806	59.23	0	26,227,399.38	43,900	690.42	30,309,438.00
TOTAL	**4,938,431**	**57.12**	**0**	**284,877,860.72**	**568,500**	**690.42**	**392,503,770.00**

2023

Month	kw/hr	Rate/kw (NGN)	Fixed Charge (NGN)	Total Bill (NGN)	Diesel(Ltr)	Rate/Ltr	Cost (Ltr)
Jan-23	495,791	67.48	0	33,455,976.68	32,600	964.42	31,440,092.00
Feb-23	497,348	69.88	0	34,754,878.24	21,150	964.42	20,397,483.00
Mar-23	433,188	69.88	0	30,271,177.44	31,700	964.42	30,572,114.00
Apr-23	355,632	69.88	0	24,851,564.16	35,800	964.42	34,526,236.00
May-23	364,934	69.88	0	25,501,587.92	23,100	964.42	22,278,102.00
Jun-23	506,125	69.88	0	35,368,015.00	50,500	964.42	48,703,210.00
Jul-23	307,066	69.88	0	21,457,772.08	48,900	964.42	47,160,138.00
Aug-23	398,345	69.88	0	27,836,348.60	19,900	964.42	19,191,958.00
Sep-23	449,391	69.88	0	31,403,443.08	20,600	964.42	19,867,052.00
Oct-23	438,595	69.88	0	30,649,018.60	31,500	964.42	30,379,230.00
Nov-23	483,150	69.88	0	33,762,522.00	34,400	964.42	33,176,048.00
Dec-23	496,031	69.88	0	34,662,646.28	20,700	964.42	19,963,494.00
TOTAL	**5,225,596**	**68.68**	**0**	**363,974,950.08**	**370,850**	**964.42**	**357,655,157.00**

Source: Ibom hotel and Golf Resort

ELECTRICITY BILL AND ANNUAL REVENUE REPORT OF IBOM HOTEL AND GOLF RESORT (2010 - 2023)

Year	kw/hr	Rate/ kw (NGN)	kva	Total NEPA Bill (NGN)	Qty. of diesel (Liters)	Rate/Ltr. (NGN)	Diesel Cost(NGN)	TOTAL UTILITIES BILL (NGN)	Hotel's Annual Revenue (NGN)	Less Utilities Bill only (NGN)
2010	**1,874,380**	**9.70**	**19,308**	**24,562,132.14**	**-**	**-**	**-**	**24,562,132.14**	**1,284,137,548.99**	**1,259,575,416.85**
2011	**1,903,317**	**13.40**	**14,652**	**30,738,299.03**	**-**	**-**	**-**	**30,738,299.03**	**1,321,395,892.89**	**1,290,657,593.86**
2012	**2,163,580**	**17.15**	**9,925**	**45,126,736.02**	**-**	**-**	**-**	**45,126,736.02**	**1,361,205,677.28**	**1,316,078,941.26**
2013	**1,400,270**	**22.08**	**127,146**	**32,464,149.50**	**-**	**-**	**-**	**32,464,149.50**	**1,755,374,927.13**	**1,722,910,777.63**
2014	**2,190,650**	**22.74**	**148,835**	**51,648,314.70**	**-**	**-**	**-**	**51,648,314.70**	**1,281,215,014.34**	**1,229,566,699.64**
2015	**2,474,103**	**22.74**	**148,835**	**76,478,753.95**	**-**	**-**	**-**	**76,478,753.95**	**1,295,853,300.18**	**1,219,374,546.23**
2016	**2,453,810**	**35.90**	**148,835**	**100,328,927.00**	**1,843,970**	**235.00**	**433,332,950.00**	**533,661,877.00**	**1,296,607,539.90**	**762,945,662.90**
2017	**2,329,000**	**46.35**	**0**	**112,471,092.00**	**1,828,162**	**185.00**	**338,209,970.00**	**450,681,062.00**	**1,441,183,483.10**	**990,502,421.10**
2018	**3,676,950**	**48.39**	**0**	**192,242,437.09**	**1,029,565**	**234.25**	**241,175,601.25**	**433,418,038.34**	**1,254,728,771.59**	**821,310,733.25**
2019	**3,460,690**	**48.39**	**0**	**167,462,788.90**	**836,000**	**235.00**	**196,460,000.00**	**363,922,788.90**	**1,339,278,818.01**	**975,356,029.11**
2020	**2,968,505**	**48.39**	**0**	**144,032,818.90**	**476,504**	**222.50**	**106,932,765.00**	**250,965,583.90**	**519,779,755.10**	**268,814,171.20**
2021	**4,217,931**	**52.60**	**0**	**219,972,519.57**	**662,823**	**280.00**	**185,590,440.00**	**405,562,959.57**	**2,443,215,589.40**	**2,037,652,629.83**

2022	**4,938,431**	**57.12**	**0**	**284,877,860.72**	**568,500**	**690.42**	**392,503,770.00**	**677,381,630.72**	**2,759,684,817.58**	**2,082,303,186.86**
2023	**5,225,596**	**68.68**	**0**	**363,974,950.08**	**370,850**	**964.42**	**357,655,157.00**	**721,630,107.08**	**2,961,363,828.83**	**2,239,733,721.75**
Grand Total	**41,277,213**			**1,846,381,779.60**	**7,616,374**		**2,251,860,653.25**	**4,098,242,432.85**	**22,315,024,964.32**	**18,216,782,531.47**

Source: Ibom hotel and Golf Resort