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Prepaid meter issues in Ghana: Assessing the impact and the way forward

corresponding author
Emmanuel Keku
Kwame Nkrumah University of Science and Technology, Kumasi-Ghana
ekekuinchrist247@gmail.com

Gifty Ayew
Kwame Nkrumah University of Science and Technology, Kumasi-Ghana

Sandra Asabea
University for Development Studies, Tamale-Ghana

Godfred Yaw Boanyah
International Center of Insect physiology and Ecology, Nairobi-Kenya

Abstract: When it comes to electricity, several African developing nations confront a "twofold tragedy." The rate of access to power is minimal, and those who do experience frequent outages have significant consequences. Ongoing attempts are being made to expand access to energy throughout the continent. However, the necessity to increase electrical supply stability gets little concern. Unreliable power has negative effects on customers by reducing energy use and the advantages that should result from having an electrical connection. Using data obtained from 400 ECG users and 33 in-depth interviews, this research investigates the effect of prepaid meter problems in Ghana as well as potential solutions. The research used descriptive and logistic regression methods to examine socioeconomic characteristics, perceptions, recommendations, and self-reported effects of the recent October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana. The O^{22}PMI was determined to have a negative influence on the daily activities and security (89.5%) of respondents. Lack of public trust, approved illegal connections, worry, frustrations, and fear, insufficient resources and personnel at the ECG, business and financial losses, and the destruction of household appliances were key themes that emerged from the research. Income and residence are significant indicators of the self-reported impacts of the outage. The O^{22}PMI was more likely to affect those with incomes below the federal minimum wage. To avoid future prepaid metering failures and frequent power outages, it is recommended that the government and other ECG stakeholders help in the deployment of stable systems and new innovations to increase power capacity.
Keywords: Prepaid Meter, Power Outages; Outage Impacts; ECG; Ghana

Contextualization and analysis

Increasing access to affordable, clean energy is the basis of Sustainable Development Goal (SDG) number seven, and central to achieving many of the SDGs – in Ghana, it is estimated that only 82.5 percent of households in 2016 have access to electricity (World Bank Group, 2021). Attaining full electricity access requires increasing the production capacity through increased investment in the generating capacity, as well as improving energy consumption and distribution efficiency (Salite et al., 2021; World Bank Group, 2018).

In the past decade, Ghana has undergone electrical supply issues costing the country an average of US $2.1 million in loss of productivity daily (Kumi, 2017). This condition has evolved even if installed generation capacity has considerably expanded throughout the time; expanding from 3,795 MW in 2016 to over 5,300 MW in 2022 (USAID, 2022). In 2022, power consumption of approximately 22.7 thousand gigawatt hours were predicted in Ghana, up from an estimated quantity of 21.3 thousand gigawatt hours in the previous year. More growth was

anticipated, with a peak of 36,500 GWh in 2030 (Sasu, 2022). Many things, such as nonpayment of money by users and high levels of losses in the distribution system owing to old equipment, contribute to the energy supply problems. Other issues include excessive reliance on thermal and hydro sources for energy generation and a bad pricing structure, which makes it difficult for the utility firms to restore costs of electricity supply.

The Electricity Company of Ghana (ECG)'s prepaid metering system was unable to provide services to its customers as of Monday, September 26, 2022, leaving many houses around the nation without power (Tackie, 2022). Customers of the ECG suffered power interruptions from the end of September to the second week of October, 2022, due to technical challenges with the ECG's prepaid metering system (Boakye, 2022). This terrible event affected many customers, especially those in Volta, Kumasi, Tafo, Accra, Kosoa, Takoradi, Tema, Cape Coast, Winneba, Swedru, Koforidua, and Nkawkaw enclaves, where the ECG had been unable to fix the serious technical problem for days (Duhoe, 2021).

As part of the ECG's initial response to the problem, they admitted that technical glitches had disrupted prepaid metering systems and had halted the sale of prepaid energy credit throughout the nation (Tackie, 2022). In an interview, ECG's Managing Director, Samuel Dubik Mahama, indicated that the serious situation has arisen from ECG's incapacity to complete the necessary testing and systematic updates. He also said that the ECG would enhance its core services and technology. Following that, the study's purpose is to provide a detailed account and documentation of the difficulties with prepaid meters in Ghana, as well as an analysis of their impacts and recommendations for how to address the issue.

A number of studies have examined the effect of switching from postpaid to prepaid metering on energy conservation and found positive and statistically significant outcomes (see e.g., Qiu et al 2017, Aliu 2020, Jack and Smith, 2020). In Ghana, prepaid meters are promoted and adopted due to lowered operating costs for power distributors, fewer delayed bill payments, and reduced fraud through illegal access to power (Kumi, 2017; Otchere-Appiah, 2021). However, the research thus far leaves a gap in identifying and explaining how prepaid meters' issues may affect the welfare of households in different socio-demographic and economic variables such as income quintiles.

Achieving sustainable economic development requires the convergence of many elements, including universal access to energy and a concentration on fast industrialization. Electricity is required for law and order, security, and stability (Adusei, 2012). A regular and consistent supply of electrical energy is critical to the manufacture of all goods and the expansion of economic infrastructure.

In Ghana's history of electricity generation, there have been several transitional periods, beginning with the use of diesel generators and independent electricity supply systems owned by industrial mines and factories, progressing to the hydro phase after the construction of the Akosombo dam, and finally arriving at the present day with a thermal complement phase powered by gas and/or light crude oil. In Ghana, a lack of dependable electricity has become a chronic development challenge, presenting an ever-increasing threat to the country's economic growth and transformation. What seemed to be a transitory setback to Ghana's development agenda is now a continual reminder of itself via the difficult rationing system, the slowdown in industrial activity, the loss of jobs and money, and the disruptions to social life (Eshun & Amoako-Tuffour, 2016).

According to a 2014 analysis by the Institute of Statistical, Social, and Economic Research (ISSER, 2014), Ghana's current power outages cost the nation between $320 million and $924 million in lost productivity and economic growth per year. According to the Wholesale Power Reliability Assessment Report (2010), Ghana's unreliable and inadequate power infrastructure costs the country between 2% and 6% of its GDP each year (Adusei, 2012). Because of the financial ramifications, a consistent and reliable power supply is critical (Eshun & Amoako-Tuffour, 2016).

The ability of the Akosombo dam to supply energy was significantly hampered by a disastrous drought in 1983 and a following power crisis in 1984 (ISSER, 2005). Power rationing and a reduction in supplies to neighboring Togo and Benin were further repercussions of the dam's total inflow being less than 15% of the intended quantity between 1982 and 1984. While energy consumption decreased from 4652 GWh in 1981 to 1151 GWh in 1984, power supplied decreased from 5180 GWh. Meanwhile, beginning in 1985, demand for electricity increased substantially owing to factors such as the rise of new industries and urbanization. Power consumption increased from 2083 GWh in 1985 to roughly 4780 GWh in 1990 (Eshun & Amoako-Tuffour, 2016).

In 1998, poor rainfall and inflows to Volta Lake created another power crisis and round of power rationing (ISSER, 2005). Despite a decline in residential consumption from 5110 GWh in 1991 to 4965 GWh in 1998, available power supply only exceeded domestic demand in 1998 (Eshun and Amoako-Tuffour, 2016). This study therefore sought to describe the socio-economic characteristics of electricity prepaid users; assess the impact of prepaid meter issues in Ghana as well as propose feasible measures to address the prepaid meter issues among Ghanaian communities.

Research Objectives and Questions

The principal objective of the research was to investigate at the immediate responses and import of Ghana's recent prepaid meter and ECG power crisis. The following research questions were proposed to help the researchers achieve the study's goal.

RQ1: What socioeconomic features do Ghanaian prepaid meter consumers have?

RQ2: What is respondents' perceptions about Ghana's recent prepaid meter and ECG power shortage as well as possible recommendation for addressing the issue?

RQ3: Has the October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana had a detrimental impact on the respondent's everyday activities?

RQ4: What risk factors exacerbated the recent prepaid meter and ECG power shortfall in the research area?

Study Setting and Power Usage – An Overview

This work was carried out in Ghana, a West African nation bordered on the north by Burkina Faso, on the south by the Gulf of Guinea, and on the east and west by Togo and Ivory Coast, respectively. The nation now has an estimated population of 30.7 million people in sixteen (16) regions (Sasu, 2022). Ghana generates about 64% of its electrical power from hydro sources. Electricity is the dominant form of modern energy used in Ghana, accounting for about 65% of the energy used in the industrial and service sectors and about 36% in residential use (Eshun, 2016). Ghana's current plants have a total installed capacity of 5,134 Megawatts (MW), with a reliable capacity of 4,710 MW. Ghana generates 66% of its electricity from thermal sources, with hydropower making up the remaining 33 percent. The percentage of people who have access to electricity is 86.63% (in 2021), with 91 percent of urban inhabitants and 50% of rural residents both having connection to the grid (USAID, 2022).

Methods (Design, Sampling, Online Questionnaire, And Data Analysis)

This study employed a mixed method cross-sectional technique to examine the prepaid meter issues in Ghana. From 28th September to 8th October, 2022, a nationwide, self-administered internet-based poll was conducted along with qualitative interviews with customers who have queued at the ten most affected areas in the country to have their concerns and issues resolved. Both convenience and snowball sampling techniques were used to choose participants for this pilot survey with the help of Google Forms via WhatsApp. The online questionnaire explored the respondents' socioeconomic characteristics and awareness of the self-reported effect of Ghana's recent October 2022 Prepaid Meter Issues (O^{22}PMI), along with an in-depth interview with 33 ECG prepaid meter users. Participants' responses were kept personal and anonymous in order to minimize any bias caused by self-reported data. The questionnaire was also designed to minimize survey stress and was validated and verified by survey research specialists. Microsoft Excel (Microsoft Office 2016) and STATA software version 16 were used to obtain and analyze data. A univariate study was followed by a multivariable logistic regression analysis that included some selected components that exhibited significance ($p<0.05$) to evaluate characteristics related to respondents' self-reported impact of the October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana. For each independent variable, odds ratios (OR), 95% confidence intervals (CI), and p-values were calculated. A p-value of less than 5% was considered to be statistically significant (*). The qualitative data was also analyzed with thematic content technique. This exercise aimed to provide an overview of the responses and grievances of Ghanaian citizens, as well as the immediate or short-term effects of the current power outage in October 2022.

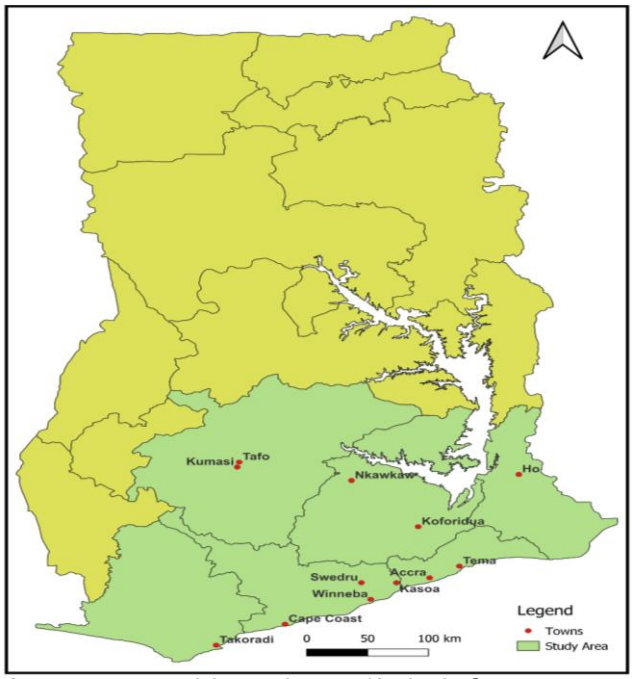

Figure 1. A map of the study area (Author's Construct, 2022)

Results and Discussion of the Pilot Survey

RQ_1&4: Socioeconomic features and associated risk factors of the O^{22}PMI in Ghana

This section discusses the important conclusions of the data analysis for addressing research question 1 and 4; What socioeconomic

features do Ghanaian prepaid meter consumers have? And what risk factors exacerbated the recent prepaid meter and ECG power shortfall in the research area?

The pilot cross-sectional survey included 400 Ghanaians, the majority of whom were male (64.25%), from the working class (25-34 years; 66.75%), earned less than GHC 500.00 (31%), and lived in Kumasi/Tafo and Accra/Kasoa (68.5%). These figures back up the conclusions of the following studies: For days, ECG prepaid meter customers in Kumasi, Tafo, Accra, and Kosoa had a significant technical problem (Duhoe, 2022). The minimum wage is seldom enforced since most employees, especially those in the informal sector, are paid less than the minimum wage (Otoo, 2018).

Table 1: Socio-Economic Factors and Association with O[22]PMI (Bivariate & Multivariate Analysis)

	Awareness and Self-reported Impact of O[22]PMI[3]				
	Total			***Adjusted***	***p-value[2]***
Gender	***Characteristic N=400***	***NO, N = 42[1]***	***YES, N = 358[1]***	***AOR (95% CI)***	
Female	*143 (35.75%)*	*22 (52.38%)*	*121 (33.80%)*	*Ref*	*1*
Male	*257 (64.25%)*	*20(47.62%)*	*237 (66.20%)*	*1.02 (-.052-0.067)*	*0.386*
Age of respondent					
18-24	*41 (10.25%)*	*0 (0%)*	*41 (11.45%)*	*Ref*	*1*
25-34	*267 (66.75%)*	*32 (76.19%)*	*235 (65.64%)*	*0.99 (-.092-0.067)*	*0.756*
35-44	*82 (20.5%)*	*10 (23.81%)*	*72 (20.11%)*	*0.95 (-.157-0.051)*	*0.319*
45-54	*10 (2.5%)*	*0 (0%)*	*10 (23.81%)*	*0.99 (-.189-0.170)*	*0.918*
Income level					
Below 500	*124 (31%)*	*11 (26.19%)*	*113 (31.56%)*	*Ref*	*1*
501-1000	*71 (17.75%)*	*0 (0%)*	*71 (19.83%)*	*0.97 (0.096-2.055)*	***0.046****
1001-2000	*102 (25.5%)*	*10 (23.81%)*	*92 (25.70%)*	*0.90 (0.018-0.024)*	***0.010****
Above 2000	*103 (25.75%)*	*21 (50.00%)*	*82 (22.91%)*	*1.01 (-0.015-0.053)*	*0.781*
Region of Residence					
Kumasi/Tafo	*162 (40.5%)*	*10 (23.81%)*	*152 (42.46%)*	*Ref*	*1*
Accra/Kasoa	*112 (28%)*	*0 (0%)*	*112 (31.28%)*	*1.07 (0.009-0.134)*	***0.024****
Cape Coast	*21 (5.25%)*	*0 (0%)*	*21 (5.87%)*	*1.01 (-.100-0.130)*	*0.802*
Volta	*10 (2.5%)*	*0 (0%)*	*10 (2.79%)*	*1.02 (-.134-0.169)*	*0.817*
Swedru	*21(5.25%)*	*0 (0%)*	*21 (5.87%)*	*1.06 (-0.055-0.173)*	*0.310*
Koforidua	*20 (5%)*	*10 (23.81%)*	*10 (2.79%)*	*0.62 (-.598- -0.348)*	***<0.001****
Takoradi	*10 (2.5%)*	*0 (0%)*	*10 (2.79%)*	*1*	*1*
Tema	*11 (2.75%)*	*11 (26.19%)*	*0 (0%)*	*0.37 (-1.159- -0.82)*	***<0.001****
Winneba	*22 (5.5%)*	*11 (26.19%)*	*11 (3.07%)*	*0.62 (-.587- -0.369)*	***<0.001****
Nkawkaw	*11 (2.75%)*	*0 (0%)*	*11 (3.07%)*	*1.04 (-.107-0.1933)*	*0.571*

*[1]n (%); * statistically significant at 0.05 and ** statistically significant at 0.01; [2]Fisher's exact test;*

*[3]**O[22]PMI** – October 2022 Prepaid Meter Issues (in Ghana). **OR**= odds ratio; **CI**=confidence interval*

Source: *Field data collection, 2022*

The study of the Ghanaian populace's opinions and depth of understanding on O[22]PMI reveals that a majority of 358 (89.5%) respondents recognized the troubling October 2022 Prepaid Meter Issues and admitted being impacted by the incident. This study is comparable to that of Keku and Patterson (2022), who discovered that the majority of Ghanaians reported discontent, irritation, and displeasure during an outage. Furthermore, considering that power outages are common in Ghana (Nduhuura, 2021), another study found that there is a level of tolerance for disruptions when systems fail in Ghana, as their study found that more than half of the working-age population (25-34 years) were not disrupted during an intensive online global outage (Keku and Patterson, 2022).

A univariate analysis of Table 1 demonstrates that there is a significant relationship between all of the studied factors and the awareness and self-reported effect of the O[22]PMI (in Ghana). A multivariate analysis reveals that Ghanaian residents earning between GHC 501-1000 and GHS 1001-2000 were 3% (AOR=0.97; CI=0.096-2.055; p<0.046) and 10% (AOR=0.90; CI=0.018-0.024; p<0.010) respectively

were less likely to be affected by the O^{22}PMI than those earning less than GHC 500. Finally, the analysis shows that participants from Kumasi/Tafo were 7% more likely to be affected by the O^{22}PMI than those in Accra/Kosoa whilst those in Koforidua, Tema and Winneba which 38%, 63%, and 38% respectively less affected by the incident than those in Accra/Kosoa. According to the results, the minimum wage is seldom enforced since most employees, especially those in the informal sector who suffer greatly during national crises, are paid less than the minimum wage (Otoo, 2018).

RQ_2&3: Perception, Impact and Possible recommendation for addressing O^{22}PMI in Ghana

This section summarizes the findings of an in-depth interview performed with 33 ECG prepaid meter consumers from ten operational areas in the country (Volta, Kumasi, Tafo, Accra, Kosoa, Takoradi, Tema, Cape Coast, Winneba, Swedru, Koforidua, and Nkawkaw) in response to the study's research questions two and three; "How did respondents perceive Ghana's recent prepaid meter and ECG power shortage as well as possible recommendation for addressing the issue?" and "Has the October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana had a detrimental impact on the respondent's everyday activities?" The main themes emerged from the transcription of the interview were lack of public trust, approved illegal connection, anxiety, frustrations, and fear, inadequate resources and workers, business and financial loses destruction of home appliances and gadgets.

Lack of public trust in ECG

Building peaceful and inclusive communities requires the trustworthiness of public institutions. While levels of trust in institutions vary substantially across nations, but studies show a steady erosion in public's trust over the last several decades (United Nations, 2021). Due to the fact that almost all participants voiced mistrust and disdain about the Electricity Company of Ghana (ECG) during the recent October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana, our survey supports this conclusion. Despite ECG's assurances that the problem would be resolved, several participants felt otherwise. Below are some of their quotes;

"Lol. Is this even achievable? You can't even get them to fix a sudden fault on a normal day" – ***(Participant 09; Field Survey 2022)***

"My sister forgets about it they won't come and attend to you all these are fake promises and assurance I visited the office 3 days they took my contact and address and they promised to come by the close of the day believe me I am still waiting for them tears wei" – ***(Participant 02; Field Survey 2022)***

"Just left the ECG office and it's sad!!! ECG be joke" – ***(Participant 05; Field Survey 2022)***

"The officials at the ECG are corrupt, their system is not strong to check the leakage of power. Thousands of their own members have done illegal connection for family and friends. They should change new face from different regions to come check all the above." – **(Participant 21; Field Survey 2022**

Approved illegal connection

Any service connections for which Council approval has not been obtained are deemed illegal (Law Insider, n.d.). The report revealed that due to severity of the power shortage problem, one of the ECG's initial responses was to deploy its workers to make illegal connections for consumers and consequently, a number of customers engaged in illegal connections. The following quotations indicate the participants' perspectives on the aforementioned allegations.

"Please find some electrician in your area to do the needful for you wai" – ***(Participant 17; Field Survey 2022)***

"If that's the case then they shouldn't bother sending lots of people on the field, they should just issue statement that we can go ahead and turn on our lights" – **(Participant 11; Field Survey 2022)**

"I want to the office and they asked one of their men to come and do illegal connection for us. The man came and do it for us but requested for transport fee" ***– (Participant 04; Field Survey 2022***

Anxiety, Frustrations, and Fear

Admittedly, the ongoing power outages have led millions of individuals to experience worry and undue stress. They are causing damage to small businesses, hindering flow of traffic, continuing to increase cases of theft - such as wire theft - lowering output growth for persons who work remotely with no backup power, damaging devices and appliances and causing frozen foods to spoil quickly, along with other effects.

"I am not able to do my research as a student. It also places some level of fear as to what we are likely to face as a country, in the upcoming years" – ***(Participant 03; Field Survey 2022)***

"Since 27th September, 2022. our prepaid is finished, we have money we couldn't get some to buy due to some ECG technical challenges. this has really affected my output as research assistant who is always behind my laptop" – ***(Participant 08; Field Survey 2022)***

Additionally, these also added by some participants;

"I am student and I use my laptop for studies and assignments also. This current issue has affected me because I can't learn nor respond to academic demands" **– *(Participant 13; Field Survey 2022)***

"I'm sleeping in darkness for past three days now. I'm a student and I need to charge my phone and laptop to work

on my project work but I haven't been able to do that due to the prepaid issue." – ***(Participant 12; Field Survey 2022)***

"Even since that issue came i have not been able to complete any effective tasks. We've been sleeping in darkness for some days now" – ***(Participant 06 &32; Field Survey 2022)***

Inadequate resources and workers

When an institution lacks sufficient resources, the quality of its output suffers. Evidence from in-depth interviews with participants shows that ECG lacks both quality and enough workers. They had the following to say about it:

"Just left the ECG office. Prepaid can still not be bought so they're taking phone numbers and addresses of customers so they can come to your house and turn the lights on for you. I don't know how many people they have on the field to be able to execute this task but we'll see." ***– (Participant 07; Field Survey 2022)***

"Same people said they didn't have enough staff to be going round to check postpaid meters. they hired more after installing prepaid meters??" ***– (Participant 19; Field Survey 2022)***

Destruction of home appliances and gadgets

During the recent October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana, the destruction of electrical and residential equipment such as TV sets, blenders, woofers, radio sets, laptops, refrigerators, and a variety of food items was frequent. Here are some of their grievances:

"My refrigerator got spoilt. Can't study for exams and food stuffs in my fridge are spoilt" – ***(Participant 10 & 14; Field Survey 2022)***

"The power shortages have destroyed my electrical appliance like TV and Blender, that I need to spend huge money to buy new ones, also sleep in this hot condition has cause my skin disease that I am on medication. The rest of queuing to get prepaid makes me sick all the time." (Participant 01; Field Survey 2022)

"All my food stuffs in the fridge are spoilt, am not able to charge my phone and laptop" (Participant 25; Field Survey 2022)

Business and Financial loses

This study reveals that consumers of ECG suffered financial and Business losses during the power outage crisis. Participants revealed the following;

"Business is being delayed. I've lost huge sum of money since I use electricity for storage" – ***(Participant 14&18; Field Survey 2022)***

"It effects on my business was huge especially we those selling fishes. Imagine 2 to 3 days without light and there are fishes in store" – ***(Participant 15; Field Survey 2022)***

Possible recommendation for addressing O22PMI in Ghana

Study participants shared varied possible measures which can be considered by the ECG to address the issue at hand. Below are some of their suggestions and recommendations;

"As individuals, we should develop a conservative culture which we can translate into the energy sector too." - ***(Participant 27; Field Survey 2022)***

"In my own opinion, the ECG should strengthen their network and increase their power capacity Secondly, the government in collaboration with the private sectors should build other source of energy from solar and hydro" – ***(Participant 16; Field Survey 2022)***

Some participants said these about the need for effective communication;

"There should be public announcements on this prepaid issue. Also, the ECG should try their possible best to make the prepaid available for now before they continue with upgrade since much was not known" – ***(Participant 22; Field Survey 2022)***

"First of all, make the public understand the current situation and how long it will take whiles working on it. And if possible the old shift system for accessing light would help for the mean time" – ***(Participant 31; Field Survey 2022).***

Participants also advised the Government and stakeholders;

"the government should invest by raising expert to handle this challenge once and for all. We need to go back to our old system if prepaid will not help." - ***(Participant 30 & 33; Field Survey 2022)***

"Proper mechanism should be put in place so that this inconvenience will not happen again. There should be buffer credit for every meter to use in period of challenges till solutions attained" – ***(Participant 23 &28; Field Survey 2022)***

Other participants also had this to say;
"Regular maintenance of their facilities, proper personnel to look after their facilities and the government need to support them financially" - ***(Participant 20; Field Survey 2022)***

"The need to protect data systems at the ECG office and provision of backup systems. Make a substitute by giving the prepaid user the ability to use the general meter one so that they are charged to pay later" – ***(Participant 24 &29; Field Survey 2022)***

Table 2. Key Themes which emerged from the In-Depth Interviews

Research Question(s)	Themes
RQ2a: "How did respondents perceive Ghana's recent prepaid meter and ECG power shortage?	❖ lack of public trust ❖ Approved illegal connection ❖ Inadequate resources and workers
RQ2b: What are some of the respondents recommendation for addressing the issue?"	❖ Effective public communication ❖ Government and Stakeholders Input ❖ Maintenance Culture at ECG
RQ3: "Has the October 2022 Prepaid Meter Issues (O^{22}PMI) in Ghana had a detrimental impact on the respondent's everyday activities?"	❖ Anxiety, frustrations, and fear ❖ Business and financial loses ❖ Destruction of home appliances and gadgets

Source: *Author's Construct, 2022*

Conclusion

The present study concludes that the recent October 2022 Prepaid Meter Issues (O22PMI) in Ghana significantly affected the daily activities and income of ECG users in the study area.

Furthermore, the research demonstrates that the ECG has lost the public's confidence as a result of its repeated failures addressing power shortages and instability in the nation, such as the Dumsor crisis and others.

In addition, there is considerable tolerance for illegal connections and disturbances among the working-age population owing to the regular power outages. This would provide the target group guidance for future research and solutions addressing the unhealthful challenges discovered during this research.

Finally, the study concludes by shedding light on how participants believe the ECG should solve the problem of prepaid metering systems and power shortages in Ghana. The majority of evidence suggests that the Government and all ECG stakeholders must enhance public's trust by ensuring sufficient and effective public communication, enhancing the quality of the systems and personnel, expanding the power capacity, and enhancing their maintenance and conservative culture. The results of this study may be utilized to prevent or control future disasters.

Recommendation

It is accordingly recommended that a concerted effort be made to establish good communication between the public and ECG in order to dispel a great deal of unfavorable public impressions, frustrations, and misconceptions.

Furthermore, the ECG should prevent unauthorized connections. Staff and employees at ECG are required to have a high sense of integrity and trustworthiness. This will deter many individuals from participating in illegal connections among our society.

Furthermore, it is suggested that the government and other ECG stakeholders assist in the implementation of dependable systems and modern technologies to improve power capacity in order to prevent future prepaid metering failures and frequent power outages.

Finally, multiple studies in various regions of the globe should be conducted to establish the degree to which power outages influence their users, allowing for the well-informed deployment of essential safeguards.

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