Difference Between the Power Consumption Rate of Pre-Paid and Post-Payment Customers: 900 Volt Ampere

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Abstract

Both the pre-paid KWH meter and the KWH meter after payment are instruments that PT. Perusahaan Listrik Negara (Persero), also often abbreviated PLN, uses to determine the printing number of KWH meters used by energy users. There is a problem with smart meters in society; many still have doubts about using them because they are thought to be more expensive. In the village of Alue Ie Mameh, the study is to determine the extent of variation in electricity consumption and the computation of electricity prices for pre-paid and post-payment clients over the course of a month of use. The mix method is the strategy. Ten pre-paid consumers and ten post-payment customers were polled by Objects. In the village of Mameh, post-paying customers use more electricity than pre-paid customers do. The longest-running electrical device used by residents of Alue Ie Mameh is their refrigerator, which operates around the clock.

Keywords: After Payment, Prepayment, Electricity Usage

Abstrak

PT. Perusahaan Listrik Negara (Persero) atau biasa disingkat PLN, memiliki dua alat untuk menghitung pencacatan jumlah KWH meter yang digunakan pelanggan listrik, KWH meter pascabayar dan KWH meter prabayar. Smart meter memiliki permasalahan di masyarakat, dimana masyarakat masih ragu terhadap penggunaan smart meter yang di anggap lebih mahal. Penelitian ini bertujuan untuk mengetahui tingkat perbedaan penggunaan energi listrik dan perhitungan biaya listrik pada pelanggan prabayar dan pascabayar di desa Alue Ie Mameh dalam jangkat waktu pemakaian 1 bulan. Pendekatan yang diginakan adalah mix method. Objek yang diteliti 10 pelanggan prabayar dan 10 pelanggan pascabayar. Pelanggan listrik pascabayar di desa Alue Ie Mameh lebih banyak menggunakan daya listrik dibandingkan dengan pelanggan listrik prabayar. Kulkas adalah peralatan listrik yang paling lama di gunakan oleh pelanggan listrik di Desa Alue Ie Mameh, 24 jam per hari.

Kata kunci: Pascabayar, Prabayar, Penggunaan Daya Listrik

Introduction

PT. Perusahaan Listrik Negara (Persero) or PLN, is an electricity service provider entrusted by the Indonesian government as a state-owned enterprise agency (BUMN) to provide the best service to all electricity users or consumers in Indonesia, as regulated in the law, which is the supply of electricity continuously with good quality and reliability [1]. According to the above statement, committing a violation will be punishable by a criminal penalty. At this time, electricity has become a necessity for doing everyday activities and is a major driver of activity in the industrial world [2]. Everyday activities require a large amount of electricity, leading to limited electricity sources. Including in

the era of blended online learning which requires electricity as energy for learning devices [3]. In Indonesia itself, household electricity consumption represents 23% of the total energy use of the entire sector [4]. Many household electronics use electricity when used. However, the electricity consumption by the family is rated at wasteful [5].

PLN, as an electricity service provider, must have a tool to calculate the amount of electricity usage used by the customer. The tool used by PLN for calculating the number of consumer power usages is the kWh meter (Kilo Watt Hour Meter). The first type of KWh used is the analogue meter. One of the obstacles that PLN faces is that customers are waiting for them to pay their electricity bills [6]. To alleviate this obstacle, PLN has introduced a new innovation by providing a pre-paid service system or smart electricity. The system uses the calculation of electricity usage with digital kWh meters. To use electricity, the customer's prepaid system first purchases tokens according to their new needs, then the customer uses them.

Alue Ie Mameh village is a village located in the district of Nagan Raya, where basically all households there have already used PLN services as a source of lighting as well as their daily electricity needs. PLN generally provides new customers with a pre-paid meter, as post-payment meters are not allocated to new customers. While the old customers can migrate to a prepaid system if they so wish, both systems have their respective advantages and disadvantages. But not all communities have migrated to a pre-paid system, which is because the public is still in doubt about the services provided by this digital meter system [7].

Based on the observations of researchers in the village of Alue Ie Mameh, the researchers found that it was due to a lack of socialization towards the community, which raised doubts for the community, which judged the pre-paid system more based on the use of electricity than after payment, and they also argued that the payment process is also more rigid than post-payment. Researchers in the village of Alue Ie Mameh have observed that people in the village tend not to care about their electricity consumption. The investigation revealed that many households neglected to turn off the terrace lights until daylight, and occasionally left the television on when no one was watching.

Based on the assumptions of the public against the still confusing waste of electricity and the lifestyle of Alue Ie Mameh people who do not understand the methods of not using electricity with wasteful, the author is interested in studying further the rate of difference in electricity consumption between pre-paid and post-payment customers in 900 Volt Ampere at village, Alue Ie Mameh.

Method

The research was carried out to determine the difference in the level of electricity consumption between pre-paid and post-pay customers of 900 Volt Ampere in the village of Alue Ie Mameh and to calculate the differences in the electricity cost of households using pre-pay and post-pay meters in Alue ie Mameh in a month's use. The goal of employing mixed methods in this research project is to be able to observe the phenomenon of electricity consumption in households using pre-paid and post-paid meters in the village of Alue Ie Mameh. Research mix methods is a mixed research project

that combines quantitative and qualitative approaches to obtain more comprehensive, valid, reliable, and objective data.

This research uses the design of exploratory sequential, which is a process of data collection that begins with the collection of qualitative data and then continues with the collection of quantitative data [8]. With regard to the purpose of the quality data collection at the beginning of the research to look at the phenomenon of the use of electrical equipment and long use of electricity, it can explain the interrelationship of two research variables. In data collection techniques, researchers use quota sampling techniques, where they determine the number of samples in the study. In this study, 10 pre-paid customers and 10 post-payment customers were sampled in the village of Alue Ie Mameh.
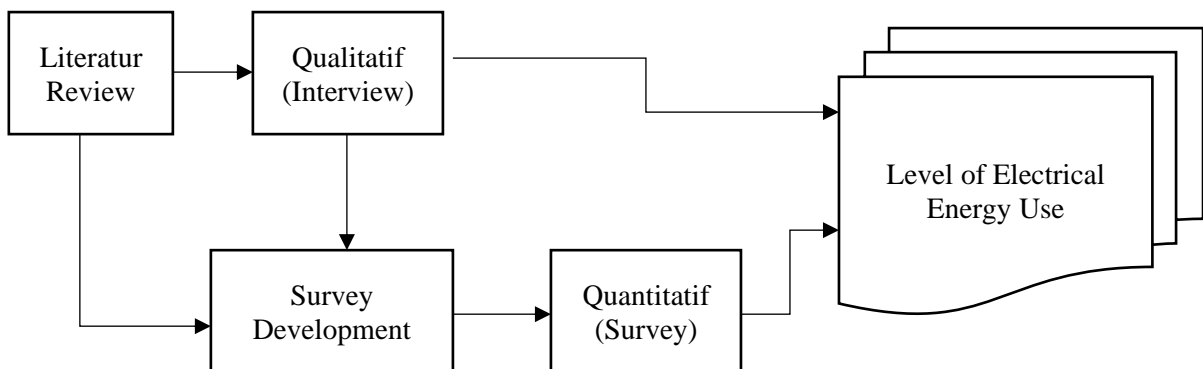

Figure 1. Research Stream.

Researchers select and use data collection tools to systematically facilitate their activities. Researchers use a research instrument to measure observed natural or social phenomena. The meaning of this phenomenon is a research variable. In this study, structured interviews are used, where the researcher directly asks questions to the respondents in order to obtain research data. By obtaining information about the lamp's length and power usage [9]. The research instruments can be seen in Table 1.

Data analysis techniques consist of a variety of ways, depending on research needs. Data analysis depends on the data generated. Quantitative data is data that is numerical or qualitative and has already been given numbers. We manually analysed electricity consumption in this study, based on the results of interviews with respondents.

Table 1. Research Instrument

No	Features you wish to observe	Questions
1	Knowing the lamp's length and power usage	How long does the lamp take in one day?
2	Knowing the length of the TV and the power used	How long does TV use in a day?
3	Knowing the length of AC wear and the power used	How long does AC use in one day?
4	Know the length of use of the refrigerator and the power used	How long does the refrigerator use in one day?
5	Knowing the long time the fan wears and the power used	How long does a fan wear in one day?
6	Knowing the length of use of the dispenser and the force used	How long does the dispenser take in one day?
7	Know the length of use of the water pump machine and the power used	How long does the water pump machine use in one day?
8	Knowing the length of use of the rice cooker and the power used	How long to use a rice cooker in one day?
9	Know the length of use of the iron and the power used	How long does the iron take in one week?
10	Knowing for a long time the wear of the washing machine and the power used	How long does the washing machine take in one week?
11	Know the length of use of the blender and the power used	How long does a blender take to use in one day?
12	Knowing the amount of electricity costs within one month	How much does electricity cost per Month?

Result and Discussion

The data obtained in this study are derived from interviews with respondents in the village of Alue Ie Mameh using pre-paid and post-pay meters. Ten respondents used 900 VA post-pay meters and ten respondents used prepaid 900 VA meters, making a total of twenty respondents. depending on the information displayed regarding the amount of power consumed and the duration of time that users of prepaid and after-pay meters spend using electrical equipment. Figure 2 demonstrates that House-G's lamps, which require 255 VA, are the source of the highest power usage among pre-paid customers. Moreover, House-G has the fridge with the largest power consumption, using 210 VA. However, Houses C, G, and I have the maximum power consumption (120 VA) for their

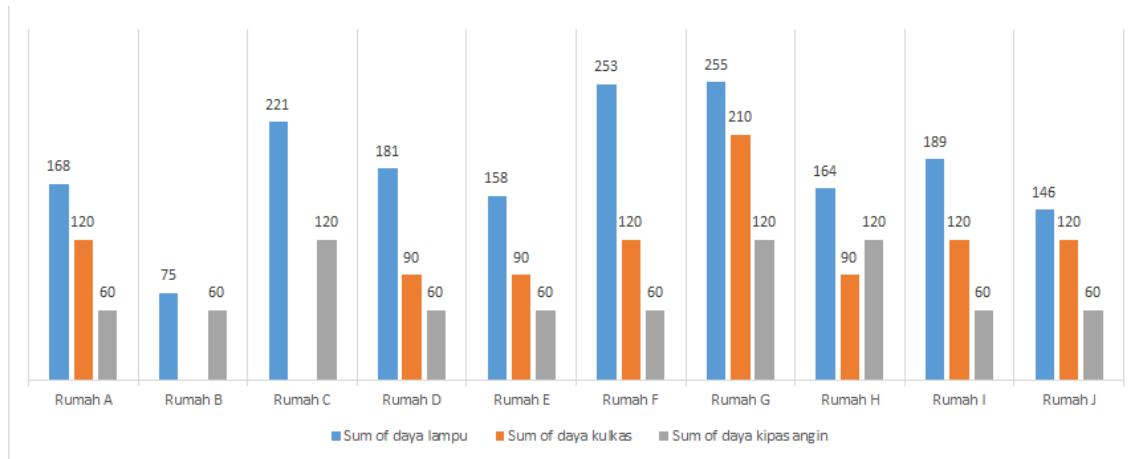Mursyidin, Husnizar, Muhammad Syakir

windshields.

Figure 2. Electricity Consumption of Prepaid Customers

When calculated, the average power consumption of pre-paid customers for lighting needs is 181 VA, whereas the average electric power use for refrigerators is 120 VA. And the power consumption of an average wind fan is 78 VA.
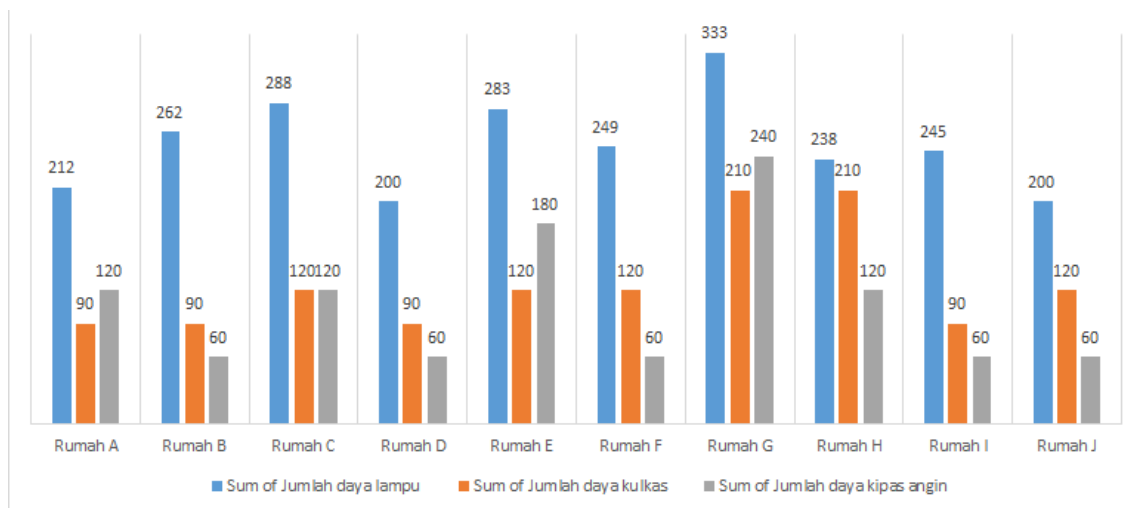

Figure 3. The Electricity Consumption of Post-Payment Customers

Based on Figure 3, it can be seen that the highest power consumption in post-payment customers is the use of lights used by the House-G, which recorded 333 VA. And for use, the highest refrigerator is also detected on the House-G and House-H of 210 VA. While the highest power consumption for a fan is found at House G, which is 240 VA. When calculated, the average power consumption of pre-paid customers for lighting needs is 251 VA, whereas the average electric power use for refrigerators is 126 VA and the power consumption of an average wind fan is 108 VA.

According to the comparison analysis's findings, pre-paid customer lights used 181 VA of electricity, whereas post-paid customer lights used 251 VA. It indicates that, in comparison to post-paid consumers, pre-paid power users use less electricity for lighting. The comparison analysis rate of electricity consumption for pre-paid customer refrigerators is 120 VA, whereas electricity usage for post-paid customer lamps is 126 VA. It shows that the pre-paid electric retardant uses a minimum amount of electricity for the refrigerator compared to the post-paid customer.

According to the analysis's findings, wind fans owned by pre-paid customers use an average of 78 VA of power, but wind fans owned by Pascabayar consumers use an average of 108 VA. It demonstrates that, when compared to post-paid customers, pre-paid electric retardants consume less electricity for lighting. Listed power consumption data for lights, refrigerators, and wind fans of pre-paid customers and post-pay customers in the villages of the region, ie Mameh, indicates that post-paid electricity customers use more power than pre-paid electricity consumers. The results of this study are in line with Ramadlana R (2016), which affirms that pre-paid electricity users are more economical compared to post-paid power users [10].
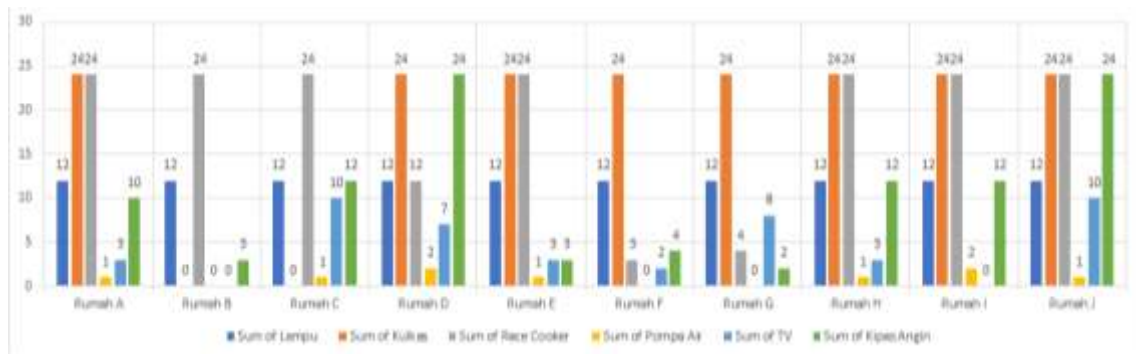

Figure 4. Long-Term Power Use of Pre-Paid Electric Insects

Figure 4 shows that the highest pre-paid customers consume the most power in House-J, where three electrical appliances - a refrigerator, a race cooker, and a wind ventilator - are used for 24 hours a day. And four customers use a race cooker and refrigerator 24 hours a day. And there are two houses that use the fridge 24 hours a day. And there are two houses that use a race cooker 24 hours a day. The refrigerator is the most used electrical equipment by pre-paid customers, being used by as many as eight households 24 hours a day. Pre-paid customers use a rice cooker 24 hours a day, and it is used by 7 households.
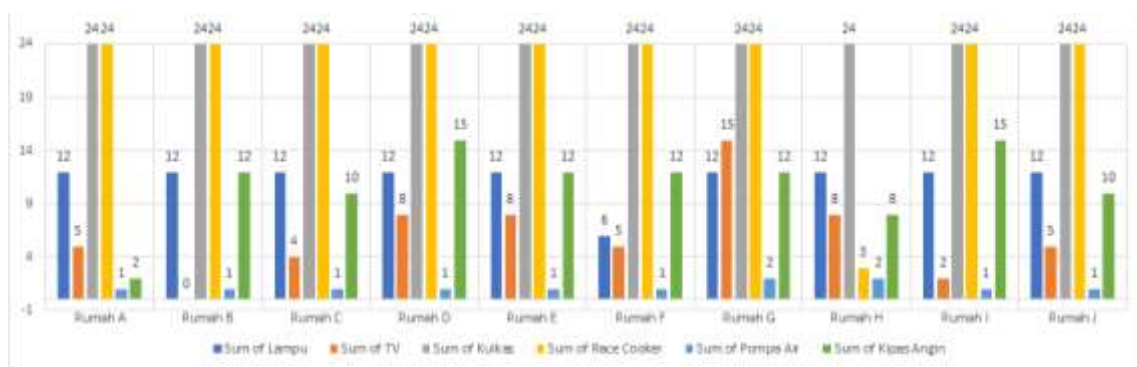

Figure 5. Long-Term Power Use of Post-Paid Electric Insects

Figure 5 explains that post-paid customers use the refrigerator the most, with as many as 10 households using it 24 hours a day. Nine households of post-paid customers use the race cooker for 24 hours a day.

A long-standing comparison of the use of electrical equipment between pre-paid and post-paid customers shows that the equipment that lasts the longest and that many households use for 24 hours a day is the refrigerator. The post-refoulement houses have

the longest duration of refrigerator usage, with ten households carefully using the refrigerator for 24 hours a day.

Conclusion

Based on the research that has been carried out, it can be concluded that after-payment electricity customers use more electricity compared to pre-paid electricity consumers.

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