

Digital Payment of Electricity Bill: A Study among Consumers under Narengi Electrical Subdivision of Assam

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ABSTRACT

Assam Power Distribution Company Limited (APDCL), earlier known as Assam State Electricity Board (ASEB) has offices in each and every district of the state, is a state government wholly owned company now days. A study is conducted among energy consumers of Narengi sub-division of APDCL to study the effect of electronic payment mode on collection of energy bills and shift in consumers' habit of making bill payment. But with the invention and introduction of e-payment system there have been paradigm shift in the mode of making payment of electricity bills. The electronic or digital payment mode has been recognized as convenient, cost effective and time saving by the energy bill payers. The continuous innovations in technology have penetrated not only into the personal lifestyle of people but it has also brought sea changes in the business landscape. The study is carried out to know the usage pattern of the digital payment system among the customers.

Keywords: Digital payment system, Revenue Collection, Energy Customers, Electricity Bills.

INTRODUCTION:

The continuous innovations in technology have penetrated not only into the personal lifestyle of people but it has also brought sea changes in the business landscape. The developments in the mode of offering services have created a new type of economy, which many call the 'digital economy' (Fozia, 2013). Today technology has become much more accessible, affordable and user friendly, as a result of which trade and commerce has undergone tremendous changes. With the introduction of internet and World Wide Web, companies have recognized Information Technology as a tool to do business while consumers acknowledged it as not only an opportunity to purchase goods over the internet but also a mode for availing services (Alisaijan & Denis, 2006). The suppliers of electricity are no exception to this. Electricity is a basic part of nature and it is one of the most widely used forms of energy. From the time of evaluation of electricity by Sir Thomas Alva Edison till now, electricity has emerged to be inseparable part of human daily life. Now, electricity is not limited to providing brightness in households but also main source of energy for commercial and industrial establishments ranging from small and large industries, medical industries, and transportation such as railways. Thus, electricity is not just a word to describe light only but also a vast area of work. Since electricity is kind of utilities services, there are government departments ensuring supply of electricity to people. In Assam, Assam Power Distribution Company Limited (APDCL) is providing electricity to the people of the state from many decades. Earlier known as Assam State Electricity Board (ASEB) has offices in each and every district of the state, is a state government wholly owned company now days. They supply electricity in return of money termed as energy charges which is the revenue for the company. Earlier, people had to make a long queue for hours to clear their energy bills in the counters. But with the invention and introduction of e-payment system there have been paradigm shift in the mode of making payment of electricity bills. The electronic or digital payment mode has

been recognized as convenient, cost effective and time saving by the energy bill payers. A study is conducted among energy consumers of Narengi sub-division of APDCL to study the effect of electronic payment mode on collection of energy bills and shift in consumers' habit of making bill payment.

Objective:

The objectives of this study are as follows.

1. To know the amount of energy bills collected by APDCL branch of Narengi subdivision.
2. To study the number of consumers under various category using the digital payment method.
3. To know the change in users of digital payment system for bill payment. To study the extent to which each category of consumers use digital payment method.

LITERATURE REVIEW:

Many researchers have done research on various topics related to this research. Some of them are as follows.

The NITI Aayog in their report entitled "Accelerating the Growth of Digital Payments in India: A Five- Year Outlook" (NITI AAYOG, 2006) present before the public a comprehensive depiction of digital transaction in India over a period of time. In their report, they signalize that the main benefit of digital transaction, the factors that perpetuated the use of cash in India and also suggest a three pillar model to accelerate the adoption of digital payment. The report also suggestions to increase the amount of personal consumption spent digitally from 5 percent to 36 percent; reduce the ratio of coins and notes in circulation to 10 percent from about 11 percent; and drop debit card usage at ATMs from 83 percent today to 76 percent over the next five years.

Chanchai Phonthanukitithaworn, Carmine Sellitto, and Michelle W. L. Fong in their article namely "A Comparative Study of Current and Potential Users of Mobile Payment Services" (Phonthanukitithaworn et al. 2016) identifies the factors that influence an individual's intention to use m-payment services and compares groups of current users (adopters) with potential users (non-adopters). The study area was Thailand for this research. At the end, the researcher came up with the outcome that the factors that influence an individual's intention to adopt m-payment services.

Kim changsu, Tao Wang, Shin Namchul and Kim Ki-Soo in their article "An empirical study of customers' perceptions of security and trust in e-payment systems" (Changsu et al.2009) studied the involvement of trust and security in the mind of customers when they want to go digital for payment purpose. They had also provided a model that delineates the determinants of consumers' perceived security and perceived trust, as well as the effects of perceived security and perceived trust on Electronic Payment System use. This research develops a theoretical model of consumers' perceived security and perceived trust, including their roles in the use of digital payment system.

A research article published by Chirag, namely "A Comparative Study on Various Payment Options in Online Shopping" (Parmar, 2015) presents before us various options that can be availed by the online shoppers while shopping digitally. The researcher has the objective of "To analyses and identified the various payment option of online shopping with people of different market and general public in Bikaner city" (Parmar, 2015,). The researcher had come to the conclusion that the major users use the cash on delivery option and of 16 to 30 years age group.

Bappaditya Mukhopadhyay in his research "Understanding cashless payments in India" (Mukhopadhyay, 2016) describes very beautifully India's gradual transition towards a cashless economy. The researcher also presents a theoretical model that evaluates decisions by consumers and sellers to adopt cashless payments. For easy understanding, the researcher has classified the results into cashless as a global trend and cashless status in India. The results shows that the percentage of cashless payment users have increased from 3.47% in 2011 to 12.61% in 2014 and most of them uses mobile payment system for that.

RESEARCH METHODOLOGY:

The study is mainly explorative and analytical in nature and based on mainly secondary sources of data. The researcher collected SAP (System, Application And Product) system generated information from the selected sub-divisions of APDCL. Collected data has been analysed using pie diagram, Bar and frequency tables. Data includes individual, firms and private institutional consumers except government departments. Since Government departments pay energy bills centrally for all departments and there is a gap for the same and, therefore, it is not included in our study. Finally, three types of consumer viz., individual consumers, industrial consumers and commercial consumers are included in this study. Individual customer's means an individual

customer of the Company or a Company Subsidiary who is directly liable under his or her contract for service¹. Generally in respect to APDCL, Individual customer means the household customers of electricity who purchases electricity for their house hold purpose. Commercial customers are one of three standard classifications of customers for commercial power, along with inhabited and industrial customers. They are non-governmental and non-industrial business consumer of power. In simple words, “Commercial” relates to buying-selling or general business activity. Commercial customers are by and large service sector businesses, although a number of manufacturers with low power demands may also make the grade. We can define commercial customers as “a business entity that procured or attempted to procure goods or services from a business entity for business as opposed to personal, family, or household use” (Maryland, 2014)². Industrial customers are consumers of energy for purposes of industry, usually manufacturing. Resource-based industries such as mining, agriculture, fishing and forestry may be eligible under this categorization, as may any other business that consumes an amount of power that exceeds a utility's verge level for qualification as an industrial customer. Electricity use in the industrial sector tends not to fluctuate through the day or year as in the residential and commercial sectors, predominantly at manufacturing facilities that operate around-the-clock.³ An industrial consumer is an entity that purchases electricity with the intent of using it in the course of operating a business. As mentioned above the study area is confined to Narengi sub-division APDCL. The study is based on the data collected from the period ranging from November 2017 to March 2018.

LIMITATION OF THE STUDY:

The study suffers from few limitations as mentioned below:

1. It is based on only 5 months of data from Nov 2017 to March 2018. Thus, data used relates to few months only.
2. Government departmental customers are excluded from the study since the payments received from Government are provided centrally.
3. The study is based on only one subdivision that is Narengi subdivision. Thus it may not provide a picture of overall APDCL's digital payment system.

About APDCL:

Earlier known as Assam State Electricity Board (ASEB), APDCL comes into force on 23rd October 2003 with a total share capital of 250 crores. Having its centers in every hook and corners of the state, the total numbers of circles of APDCL is 19 under which 159 subdivisions provide electricity to the public as well as collects revenues. Total manpower strength is approx. 9700 with a consumer base of 35 lakhs. Presently the Board of Directors consists of 9 members. The Chairperson of APDCL is Sri Jishnu Baruah and Managing Director is Sri Puru Gupta, both IAS. Presently the company has employees covered under GPF approximately 3586 which will be vacated within 7-10 years. As per new regulation, employees joining after 1st January 2004 should be covered under National Pension Scheme (NPS). Thus, APDCL has approximately 5896 employees covered under NPS. The net worth of the company as on 31st March 2017 is Rs. 2976.21 in crore.

With the rapid globalization of the Indian economy, enterprises are facing with ever changing competitive environment. The financial service sector witnessing a complete transformation and technology is playing a very noteworthy role in this record. As the fastest growing country technologically, it has a tremendous impetus to the domestic banking industry in India to deploy the latest in technology, particularly in the Internet banking and e-commerce areas (Sharma & Pithadia, 2012). Whole country is going to cashless economy. Cashless economy is a situation in which the flow of cash within an economy is non-existent and all transactions are done through electronic media channels and with the announcement of Government of India (GoI) on 8th November 2016 about the demonetization of existing 500 and 1000 rupees currency notes, Indian economy has moved towards a cashless economy (Jain, 2017).

By adopting the change in technology, APDCL also introduces the Digital payment system in its network to facilitate the customers in clearing their dues electronically. E-payment systems have received different acceptance level throughout the world; some methods of electronic payments are highly adopted while others are relatively low. They may be internet based or electronic based (Mamta et al, 2016). Now a day,

¹Individual customer, <https://www.lawinsider.com/dictionary/individual-customer>, retrieved on 5.6.2018

² Code of Maryland, January 1, 2014, https://definedterm.com/commercial_customer, retrieved on 15.5.2018

³Industrial customers, <https://www.epa.gov/energy/electricity-customers>, retrieved on 15.05.2018

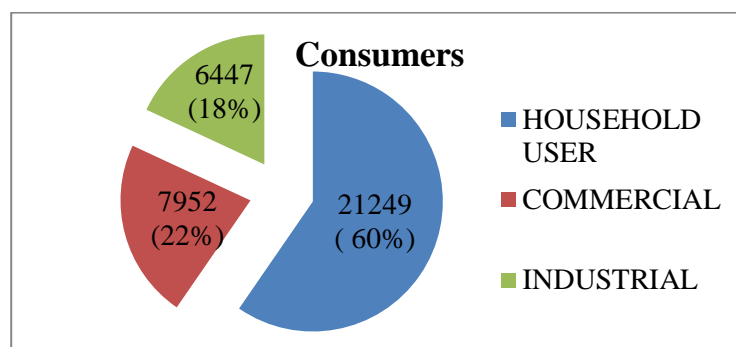
APDCL provide digital payment facility over various platforms using computers via Internet, smart phone Apps like PayTM etc.

Data analysis and interpretation:

The study is carried out on basis of data collected from Narengi subdivision of APDCL which is situated in Bamunimaidam. The Industrial Estate is also come under this subdivision. Thus, the number of industrial users in this subdivision is comparatively more than other subdivisions.

The total number of consumers under this subdivision at the end of March 2018 excluding Government customers is 35648. Under which, 21249 are house hold consumers, 7952 are commercial users and remaining 6447 are industrial users of electricity. The distribution of consumers is produced in the form of pie-diagram (see figure-1).

Figure 1: Distribution of Consumers under NESD.



Source: Database of Narengi Subdivision

In the last five months ranging from Nov 2017 to March 2018, the amount of bills received by the subdivision is produced in the following table:

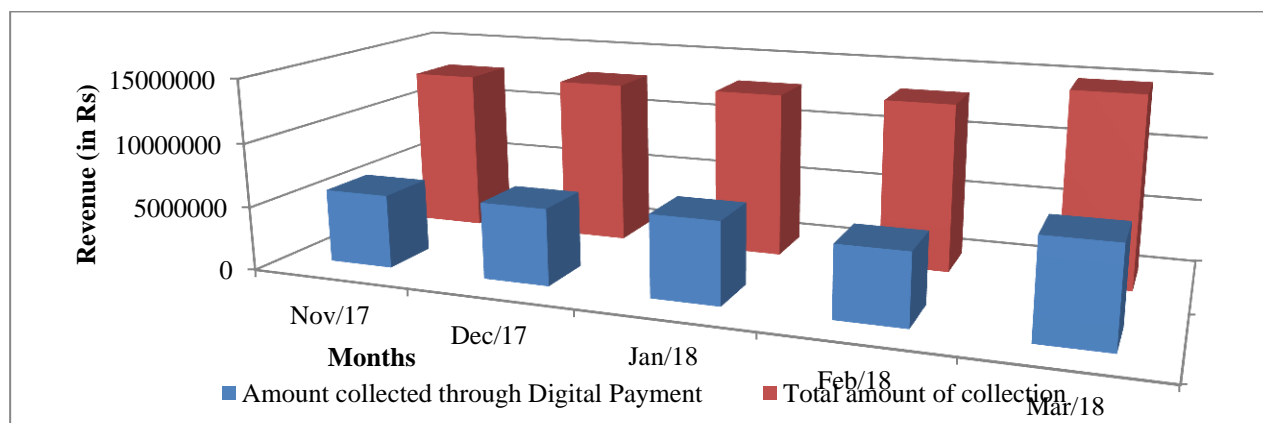
Table 1: Energy bill collected in 5 months

Month	Total amount of collection (in Rs)	Amount collected through Digital Payment (in Rs)	Percentage
November 2017	12846957.00	5781139.00	45.00
December 2017	12944152.00	5993143.00	46.30
January 2018	12998652.00	6383638.00	49.11
February 2018	13152646.00	5553047.00	42.22
March 2018	14781241.00	7550258.00	51.08

Source: Database of Narengi Subdivision

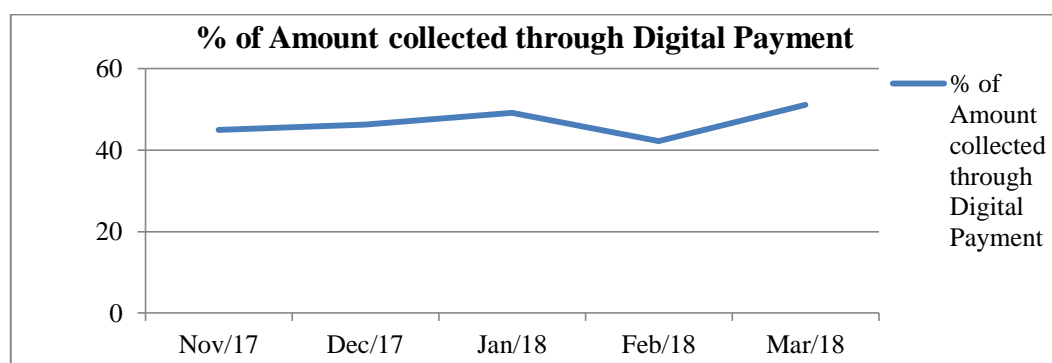
The amount of energy bill collected with the help of a Bar Diagram as follows:

Figure 2: Revenue earned along with digital payments



Source: Database of Narengi Subdivision

Figure 3: Growth in digital payment



Source: Database of Narengi Subdivision

It is clear from the above diagram that amount collected through digital payment is almost half of the total amount of collection throughout the time and has an increasing trend though in Feb 2018 it had decreased from 49% to 42%.

The distribution of consumers using digital payment system is shown in the Table-2.

Table 2: Distribution of consumers on the basis of digital payment

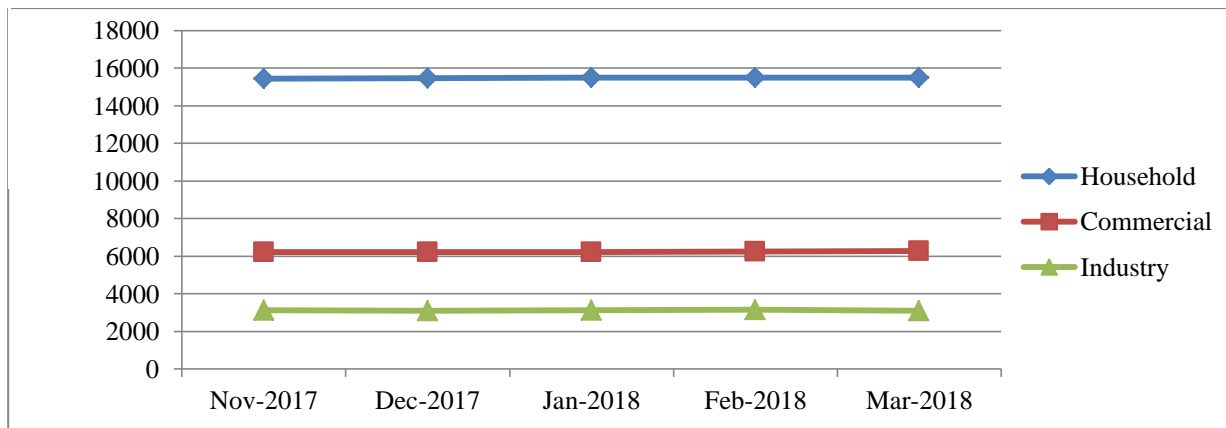
Month	Category	Total No. of consumer	No. of digital payment user consumers	% of consumers
Nov 17	Household	21231	15452	72.78
	Commercial	7933	6233	78.57
	Industry	6444	3124	48.48
	Total	35608	24809	69.67
Dec 17	Household	21233	15469	72.85
	Commercial	7939	6230	78.47
	Industry	6444	3112	48.29
	Total	35616	24811	69.66
Jan 18	Household	21239	15490	72.93
	Commercial	7942	6235	78.51
	Industry	6445	3133	48.61
	Total	35626	24858	69.77
Feb 18	Household	21241	15487	72.91
	Commercial	7943	6266	78.89
	Industry	6445	3154	48.94
	Total	35629	24907	69.91
March 18	Household	21249	15499	72.94
	Commercial	7952	6275	78.91
	Industry	6447	3114	48.30
	Total	35648	24888	72.78

Source: Database of Narengi Subdivision

In Table no 2, the researcher put the data collected from the data base of Narengi Sub division which represents overall numbers of customers under that subdivision along with the customers using Digital payment system to clear their dues.

Distribution of number of consumers on the basis of digital payment with the help of a line diagram is as follows:

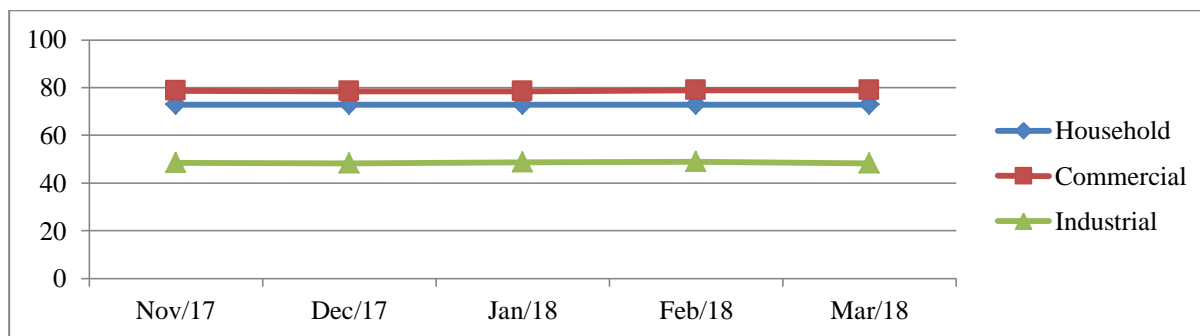
Figure 4: Distribution of number of consumers on the basis of digital payment



Source: Narengi Subdivision database

It is clear from the above diagram that household customers uses digital platform most as compared to commercial and industrial customers for payment of electricity dues whereas industrial customers uses the least. But if we take percentage of customers using digital payment system, we get a different picture as shown in figure no 5.

Figure 5: Distribution of % of consumers on the basis of digital payment

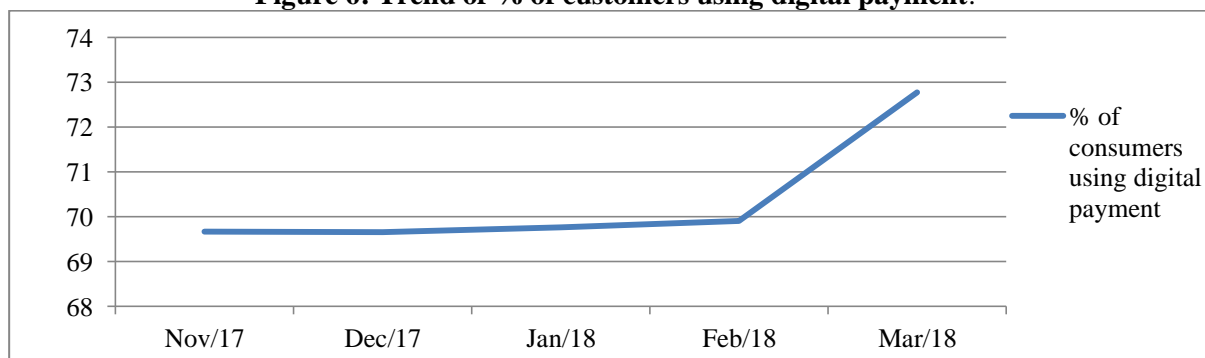


Source: Narengi Subdivision database

As from the figure no 5, it is clear that percentage of digital payment users is highest for commercial customers whereas Industrial users are at the bottom of the three.

If we take the percentage of digital platform users out of total users these months which is shown in Figure no 6, we can clearly see an upward trend.

Figure 6: Trend of % of customers using digital payment.



Source: Narengi Subdivision database

RESULTS AND CONCLUSION:

(i) A significant sum of electrical bills has been paid using digital mode by consumers falling under the Narengi sub-station. Of the total electric bills collected (Rs. 12846957.00), Rs. 5781139.00(45%) has been paid using digital mode in November, 2017 and the amount collected has increased to Rs. 7550258.00(51.08%) in March, 2018. It indicates that the mode has been gaining mileage constantly.

(ii) The numbers of consumers at the end of March 2018 excluding Government customers is 35648. It includes 21249 house hold consumers, 7952 commercial users and remaining 6447 industrial users.

(iii) The data produced in the tables shows that the digital payment mode has been drawing the attention of a large section of the consumers. Of the total respondents from whose favour the data has been collected and analysed clearly shows that consumers of electricity under Narengi Electrical Subdivision have made paradigm shift from cash payment to digital payment. The number of the customers make payment of bills using digital mode have been on constant increase during the period of November 2017 to March, 2018. It is seen that the household consumers numbering 15452(72.78%) used e-payment system in November, 2017 and it increased to 15499(72.94%) in March, 2018. Similarly, commercial consumers using e-payment has increased from 6233(78.57%) to 6275(78.91%) during the same period. Similar trend is also seen in case of industrial consumers which 3124(48.48%) in November, 2017 has decreased to 3114(48.30%) in March, 2018 registering slight decline. It is also seen that of all categories of consumers, the percentage of the same making payment of energy bills using digital mode is highest while the percentage of industrial consumers is least among the groups.

Thus, it can be conclude that, under Narengi Electrical Subdivision of APDCL, most of the people are using Digital payment system. Industrial users used e-payment least among the group.

From the above analysis, it can be concluded that digital payment mode has been receiving wider acceptability from the bill payers. This is of course due to convenience and cost-effective mode provided by digital system. The household consumers and commercial consumers have shows greater interest towards this system while industrial consumers slightly lag behind but their numbers using the system is not negligible. The APDCL should take more initiative to lure its consumers of all section to divert from cash payment mode to e-payment mode.

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