_____

Service Reliability of Batelec–1 in Selected Barangays of Calatagan, Batangas, Philippines: Basis for an Action Plan

JOANEL U. BUENAVENTURA, MBA
joanel.buenaventura@yahoo.com
Calatagan Satellite Office Chief Batangas 1 Electric Cooperative, Inc.
Master in Business Administration, Graduate School, Lyceum of the Philippines University, Batangas City
PHILIPPINES

Abstract - This study aimed to help Batelec-1 in Calatagan to expand and improve their service to provide a more reliable service to end – users. Descriptive type of research method was utilized in the study. The results reveal that the overall assessment of the respondents on the level of service reliability in terms of construction services was reliable. However, clearing of line schedule and available maintenance equipment and machine was assessed less reliable. On the level of consumers' satisfaction in construction and maintenance services, the overall assessment of the respondents was satisfied but interruption duration and action on complaints and request got the lowest mean score and interpreted as less satisfied. The results also show that the common problems and complaints encountered by the consumers were lack of information drive, unavailability of consumer hotline, inadequate facilities and equipment, and delayed action on service request/complaints. A proposed action plan is designed to provide continuous reliability on Batelec-1 services.

Based on the results of the study, construction and maintenance services of Batelec-1 in the selected Barangays in Calatagan are considered reliable, yet, can still be improved. Electric consumers are generally satisfied on personnel, construction and maintenance services yet less satisfied on information dissemination. The common problems and complaints from the consumers include lack of information drive and inavailability of consumer hotline. An action plan is proposed to provide continuous reliability on Batelec-1 services.

Keywords: Service reliability, Calatagan, Construction and Maintenance Services

I. INTRODUCTION

Electricity has become more and more a necessity and so the consumers expect and seek for greater satisfaction. To meet these demands, new equipment should be developed; hence improved methods of designing, constructing and maintaining utility system should be combined to continually increase the reliability and efficiency of electric service.

A reliable and continuous presence of electricity is more than just comfort or convenience. It is a necessity. Take power out and industries will grind to a halt – the nation's economy, as well. Without it today, life gets clumsy and gawky (Amora, 2009). It is true that reliability is fundamentally influenced by the sturdiness of equipment and apparatuses in the system, trouble – free operation and effective maintenance starts at a drawing board when the design of a system is conceptualized. The design of an electrical system is to provide continuous operation under all foreseeable circumstances, including utility outages and equipment break down. When considering the implications of reliability, all three pillars of system reliability: design, operations, and maintenance, must be inputted in the design concept (Kirschen & Boufard, 2009).

Tan Wu Yih (2007) analyzed energy management system as designed to help reduce the cost of energy to a customer by optimizing the methods used to control both processes and equipment more economically and efficiently. The conductor relies upon a core made from metal matrix composite wires surrounded by high – temperature aluminum wires. This material has been specifically developed for high temperature overhead conductor applications. The material is as strong as steel with lower electrical resistance and a coefficient of thermal expansion less than steel or aluminum (Cambri, 2008).

Chua Kok Yong (2009) claimed that power reliability and quality are two key challenges faced by power companies worldwide. While power reliability and quality are inherently different in terms of characteristics, they are actually intertwined. It is logical from a power system management perspective to first and foremost focus resources and initiatives

addressing power reliability challenges and enhancing the network reliability performance.

In most cases, there is still the battle to win the hearts and minds of people to focus on energy and think about it differently. Few people fully appreciate how much energy they use, how and where they use it and how much they actually need. This is possibly even truer of those in industry and commerce than for general public. In many cases, there is a lack of understanding about how energy can be managed and how energy efficiency can be achieved. Those with the expertise, experience, knowledge and technology must concentrate their efforts on educating, informing, influencing and persuading people to conserve electrical energy. Everybody's futures depend on it. Technology exists to help tackle energy efficiency on many levels from reducing electrical consumption to controlling other energy sources more efficiently (Gallarin, 2010).

Omer (2008) from Istanbul Technical University, in his article, "An Assessment of Power Quality and Electricity Human Right in Restructured Electricity Market in Turkey", mentioned that the most common poor quality problems are interruptions, voltage dips and harmonics, every single problem causes different economical losses on the same facility.

Furthermore, Thomas (2013) stated on his presentation that a complete PMP will include as many vital technologies as possible. With its technology providing vital pieces to diagnostic puzzle. Periodic static testing and more aggressive dynamic testing are essential parts of predicting the potential for a safe and successful operation. According to Leggett (2013), most customers want the option of starting an interaction with a customer service organization on one channel and continuing it on another without starting over. Customer service leaders must ensure that channels are integrated so that agents have a full view of prior interactions. Only 35 percent of companies report that multichannel integration is one of their top priorities.

With increasing consumer demands for outage information updates and service performance penalty schemes in the performance – based rate making regime, managing consumer complaints and resolving operating troubles become more challenging for electric distribution utilities. Immediate feedback on outage resolution milestone/updates must be provided to Call Center personnel attending to consumer calls directly from the technicians and engineers working on the troubles (Leynes, 2008).

However, brown outs and interruptions can be expected in the future. Restructuring of electric utilities and an increased spirit will not alleviate the capacity shortfall in its covered area. Thus, after a few brownouts and interruptions, consumers will realize that Batelec–1 in Calatagan needs more improvement and upgrading.

Batelec-1 in Calatagan area has grown steadily in the past decades. The consumers expect their electric power to be of high quality and readily available when needed. Under the franchising system of the past, Batelec–1 has done an admirable job of supplying reliable electric energy at an affordable cost. It has consistently garnered awards for its remarkable operational performance.

For Batelec–1, maintaining a high level of reliability requires continuing purposive watch. The sub-station relies on a dependable interconnected network of generation by NGC, transmission (Transco and other power distributor), and Batelec-1's own distribution systems to power up various processes whose appetite for power may be small or big time.

The type of process and behavior of manufacturing operations of the sub-station dictates the continuity of service requirements of the power system. Some can tolerate interruptions while others require the highest degree of continuity, where adequacy and continuity of service are of prime importance. These sub-stations deserve a much higher degree of sophistication in their own distribution system than others.

Thus, consumer satisfaction is a goal to aspire, and so the researcher embarked in this study to help Batelec-1 in Calatagan expand and improve their service and provide a more reliable service to end – users. This study is an effective means of encouraging Batelec-1 to strive, be creative and innovative in the practice of their services, not to rest on their past achievements, but to keep aiming to avail themselves of new methods and strategies.

As the head of collection center in Calatagan, the researcher felt the need to conduct a study on how a continuous reliable service may satisfy the consumers. Hence, the results of the study will give rise to better ideas that would further improve and expand Batelec–1's service in keeping with its collective goal to provide a reliable electric service to all consumers and citizens of Calatagan.

II. OBJECTIVES OF THE STUDY

This study aimed to investigate the level of service reliability of Batelec-1 in Selected Barangays of Calatagan to serve as basis for an action plan. The paper specifically aimed to determine the level of the service reliability rendered by Batelec–1 with regards to construction and maintenance services, to assess the

level of satisfaction of the consumers in terms of construction and maintenance services and personnel services, to identify the common problems encountered by the consumers and to recommend an action plan for continuous reliability of electric service in Batelec-1.

III. METHOD

Research Design

The descriptive study consisted of a set of gathered data or information, analyzed, summarized and interpreted along certain line of thought for the pursuit of specific purpose of the study.

The researcher used the descriptive type of research in order to investigate the service reliability, satisfaction and complaints about Batelec–1 services in Selected Barangays of Calatagan. It is also a way to establish concepts related to upgrading service reliability through the result, thus an action plan is proposed for future use.

Participants

Since the study focuses on the Level of Service Reliability of Batelec-1 in Selected Barangays of Calatagan as Basis to Produce an Action Plan, the researcher selected five out of twenty six barangays which are all situated at the remotest area and where Distribution Systems traverse in forested areas. The selection is also based on the barangays with the most numerous recorded complaint and request. Using the stratified sampling method, a total of 92 respondents were chosen from the consumers of the five selected Barangays of Calatagan, 21 from Brgy. Paang Salwal, 23 from Brgy. Carlosa, 10 from Brgy. Calambuyan, 14 from Brgy. Paraiso and 24 from Brgy. Biga.

Instrument

The researcher used a set of self- made questionnaire as the main medium of data gathering from the selected respondents. The questionnaire was validated by the Technical Services Department Manager of Batelec-I Engr. Nilo G. Baylosis. Since he is the one in charge in the overall technical activities of Batelec-1, he is the most capable person to validate the questionnaire. The questionnaire design is composed of three parts; Part 1determines the level of Service Reliability of Batelec-1 on the aspects of construction and maintenance, Part 2 investigates the level of consumer's satisfaction towards the services rendered by batelec-1, and Part 3 identifies the common problems encountered by the consumers to complete

this study. Each part of the questionnaire required the respondents to check on the appropriate box that corresponds to their answer using a Likert scale of 1 to 4, as 1, lowest and 4 the highest.

Procedure

In order to obtain the necessary data, the researcher used a self-made three part survey questionnaire. A letter of request to conduct the study together with the questionnaires was sent to the Project Supervisor and the Officer in Charge of Batelec I. To answer the questions in the study, all the gathered data were tallied, encoded and interpreted using descriptive statistics.

Data Analysis

Weighted means is the statistical measure which has been applied to analyze and to determine the assessment of the respondents on the following electric service reliability of Batelec-1, consumers' satisfaction towards the services rendered by Batelec-1 including common problems and complaints encountered by the consumers.

The scale also helped the researcher in the presentation and analysis of data: 3.50 - 4.00 = Highly Satisfied/Highly Reliable/Strongly Agree; 2.50 – 3.49 = Satisfied/Reliable/Agree; 1.50 – 2.49 = Less Satisfied/ Less Reliable/ Disagree; 1.00 – 1.49 = Not Satisfied/ Not Reliable/Strongly Disagree.

IV. RESULTS AND DISCUSSION

As reflected in Table 1, the respondents claimed that construction services of Batelec-1 were reliable with composite mean of 2.88 as their overall assessment. Sturdiness of materials, equipment and apparatuses installed ranked first with 3.10 verbally interpreted reliable.

The result shows that Batelec-1 installs materials, equipment and apparatuses with a higher level of sturdiness. The management believes that troublesome equipment and apparatuses that breakdown a lot take a long time to get back online and are going to spoil reliability. This further shows that Batelec-1 is complying Article I Section 1.2.1 with the general provisions of the guidelines for the monitoring of power quality standards for distribution utilities of the Energy Regulatory Commission (ERC), stating that "Each Distribution Utility shall maintain a power quality monitoring system that can monitor performance of its equipment and Distribution System and consumer facilities".

Table 1. Service Reliability of Batelec–1 in terms of Construction Services

Indicators	WM	VI	Rank
1. Design and construction of distribution lines.	2.87	Reliable	4
2. Right of Way coordination.	2.57	Reliable	6
3. Installation procedure of Line materials, special equipment and Kw-Hr meters.	3.07	Reliable	2
4. Quality of construction materials being used.	2.95	Reliable	3
5. Sturdiness of materials, equipment and apparatuses installed.	3.10	Reliable	1
6. Cluster metering design	2.76	Reliable	5
Composite Mean	**2.88**	**Reliable**	

Legend: 3.50 – 4.00 = Highly Reliable; 2.50 – 3.49 = Reliable 1.50 – 2.49 = Less Reliable; 1.00 – 1.49 = Not Reliable

Furthermore, Kirschen and Boufard (2009) analyzed that it is true that reliability is fundamentally influenced by the sturdiness of equipment and apparatuses in the system, trouble – free operation and effective maintenance starts at a drawing board when the design of a system is conceptualized. The design of an electrical system is to provide continuous operation under all foreseeable circumstances, including utility outages and equipment break down.

Other items were also assessed reliable such as installation procedure of Line materials, special equipment and Kw-Hr meters (3.07), second, while quality of construction materials being used (2.95), ranked third and design and construction of distribution lines (2.87), fourth. Batelec-1 is providing the need for efficient power reliability which is a major concern of the electrical power utility and the government nowadays. It is said to be vital in determining the productivity and operation's efficiency of the manufacturing industry. The increase in population requires a reliable electrical supply to support the common day to day activities of people that requires electricity.

Right of way coordination got the lowest mean value of 2.57 but still interpreted as reliable. The quality of power supply can be compromised with variations from the weather. That is because most of the distribution lines of Batelec-1 traversed in forested areas where right of way coordination is being done only every six months. Most trees, especially fruit bearing trees which are obstructing the distribution system grows faster than that. Right of way coordination is done by the Batelec men, however, for actual pruning or cutting of branches and trees sub-contractors service are used.

Tan Wu Yih (2007) analyzed the need to deliver ever larger amounts of power, with the same reliability and performance consumers have come to expect, is an ever increasing requirement of electric utility industry. Increasing electrical loads, congestion and emergency capacity requirements are creating problems that the transmission grid was never designed to handle. This presentation describes what an energy management system is and the components that build such a system; looking mainly at monitoring and power quality analysis.

Table 2. Level of Electric Service Reliability of Batelec–1 in terms of Maintenance Services

Maintenance Services	WM	VI	Rank
1. Number of service crew in the area	2.68	Reliable	2
2. Number of service vehicle to accommodate request/complaints	2.53	Reliable	3
3. Accessibility of consumer hotline	2.51	Reliable	4
4. Availability of maintenance equipment and machines	2.42	Less Reliable	5
5. Clearing of lines schedule	2.09	Less Reliable	6
6. Installed sectionalizer in the area	2.83	Reliable	1
Composite Mean	**2.51**	**Reliable**	

Legend: 3.50 – 4.00 = Highly Reliable; 2.50 – 3.49 = Reliable – 2.49 = Less Reliable; 1.00 – 1.49 = Not Reliable

Based on the table, the overall assessment of the respondents on the level of service reliability in terms of

maintenance services was 2.51 as evident from the composite mean, rated reliable. On the other hand, other

indicators were assessed reliable, installed sectionalizer in the area was ranked first with 2.83 composite mean. Strategic location of sectionalizer is very important in the study of faults. It is a tool for testing and commissioning engineer to be able to check the performance of the whole electrical system. As described in the presentation of the National Energy Technologies Laboratory (NETL) for transmission and distribution systems, any protection device such as sectionalizer error due to communication failure is charged to a transmission and distribution branch component.

All other indicators were rated reliable such as number of service crew in the area, number of service vehicle to accommodate request/complaints and accessibility of consumer hotline with weighted mean of 2.68, 2.53 and 2.51respectively. Distribution system of Batelec-1 in Calatagan is being maintained by three crews operating in three shifts and equipped with two maintenance vehicles and one boom truck. Each crew is composed of 1 crew foreman, 1 driver and two linemen to accommodate request and complaints. This corresponds to Section 43 (b) of Republic Act 9136, known as the Electric Power Reform Act of 2001 or EPIRA and Rule 3, Sec. 4 (g), of its Implementing Rules and Regulations (IRR), provide that, in order to facilitate the provisions of efficient, reliable and quality service to End-Users, the Commission shall promulgate a Grid Code and a Distribution Code that shall include Performance Standards.

Wherein, the guidelines seek to ensure that the power quality specified in Article 3.2 of PDC are complied with, adopt rules and regulations for assessing the level of power quality of distribution system, adopt requirements for monitoring power quality in relation with a consumer's complaint, with methodology for monitoring Power Quality within a Distribution Utility's franchise area.

However, clearing of lines schedule and availability of maintenance equipment and machines was assessed as less reliable with weighted mean score of 2.09 and 2.42 respectively.

The importance of power reliability is becoming more and more relevant where, in the past, the issues of poor electric service reliability was not considered critical. These two indicators deserved a much higher degree of sophistication in Batelec-1 distribution system. In meeting these demands, new equipment in Batelec-1 are developed and improved methods of managing and scheduling of clearing are combined to continually increase the reliability of service.

According to Amora (2009), a reliable and continuous presence of electricity is more than just comfort or convenience. It is a necessity. Take power out and industries will grind to a halt – the nation's economy, as well. Without it today, life gets clumsy and gawky.

Batelec-1 in Calatagan area had grown steadily in the past decades. The consumers expect their electric power to be of high quality and readily available when needed. Under the franchising system of the past, Batelec–1 has done an admirable job of supplying reliable electric energy at an affordable cost. It has consistently garnered awards for its remarkable operational performance. However in spite of all these consumers are still complaining and demanding for a higher quality and reliability of service, seeking for greater satisfaction.

This corresponds to the study of Chua Kok Yong (2009), which shows that power reliability and quality are two key challenges faced by power companies worldwide. While power reliability and quality are inherently different in terms of characteristics, they are actually intertwined. It is logical from a power system management perspective to first and foremost focus resources and initiatives addressing power reliability challenges and enhancing the network reliability performance.

Table 3. Consumers' Satisfaction on Construction and Maintenance Services

Indicators	WM	VI	Rank
1. Availability of Service Crews	2.65	S	3
2. Action on complaints / request	2.42	LS	7
3. Maintenance procedures	2.77	S	2
4. Workmanship	3.03	S	1
5. Interruption duration	2.43	LS	6
6. Intermittent interruption	2.62	S	4
7. Maintained Clearance of Line	2.50	S	5
Composite Mean	**2.63**	**S**	

Legend: 3.50 – 4.00 = Highly Satisfied (HS); 2.50 – 3.49 = Satisfied (S);1.50 – 2.49 = Less Satisfied (LS); 1.00 – 1.49 = Not Satisfied(NS)

As presented in Table 3, the respondents are satisfied towards the services, indicated in the overall assessment of 2.63. Batelec-1 is now providing Predictive Maintenance Program (PMPs), which is accepted as the best method for maintaining reliability within the Distribution System and facilities. Tracking and trending the result of equipment testing on a regular schedule is the most effective way of making intelligent predictions and win the battle of consumers' satisfaction.

However, interruption duration with weighted mean of 2.43 and action on complaints / request with weighted mean of 2.42 are assessed and interpreted as less satisfied. This shows that interruption duration can cause dissatisfaction of consumers. Electric power fails due to numerous operational circumstances including mechanical influences and environmental hazards. When these two circumstances are not predicted then it can cause a longer duration of interruption.

Batelec-1 in Calatagan is lacking an organized Distribution Emergency Response Program (DERP) to minimize any outage time of major distribution artery which purpose is to share ideas and experience related to design, construction, operation and maintenance. In addition the members share material supplies, equipments and manpower during emergency situation.

According to Thomas (2013), a complete PMP will include as many vital technologies as possible. With its technology providing vital pieces to diagnostic puzzle, periodic static testing and more aggressive dynamic testing are essential parts of predicting the potential for a safe and successful operation.

Moreover, according to Omer GUL, Istanbul Technical University, Istanbul in his article, "An Assessment of Power Quality and Electricity Human Right in Restructured Electricity Market in Turkey", the most common poor quality problems are interruptions, voltage dips and harmonics, every single problem causes different economical losses on the same facility. In addition the absence of proper sufficient electrical power supply, an electrical device used by most manufacturers and common people may malfunction or worse, stop its operation.

All other indicators were rated satisfied such as workmanship which is rated first with weighted mean of 3.03. Batelec-1 is an equitably progressive electric utility that always moves itself forward on the path of continuous development. It explores the boundaries of science and technology to discover more effective mechanism to make its consumers' meet satisfaction. Batelec-1 proved that it holds this belief, and that it continues to find ways to advance itself. This mindset will boost the workers' reputation as among the world's best, most hardworking professionals. As reflected on the table, users are satisfied with maintenance procedures, availability of service crews, intermittent interruption and maintained clearance of line with weighted mean values of 2.77, 2.65, 2.62 and 2.50 respectively.

These support that Batelec-1 is complying with Article 1 Section 2 of the General Obligation of a Distribution Utility for monitoring of Reliability Standards of the Energy Regulatory Commission (ERC) stating that; (1.2.1) Each Distribution Utility shall make reasonable efforts to avoid and prevent interruptions of service. However, when interruption occurs, service shall be reestablished within the shortest time practicable; (1.2.2) The distribution System shall be designed and operated with sufficient protection to ensure safety and to limit the frequency and duration of interruption to End-Users.

Table 4. Consumers' Satisfaction on Personnel Services

Personnel Services	WM	VI	Rank
1. Treatment to each consumer	3.02	S	1
2. Treatment to consumer's feedback	2.88	S	3
3. Communication ability of personnel	2.99	S	2
4. Handling of consumer request/complaints	2.79	S	4
5. Information Program	2.46	LS	5
Composite Mean	**2.83**	**S**	

Legend: 3.50 – 4.00 = Highly Satisfied (HS); 2.50 – 3.49 = Satisfied (S);1.50 – 2.49 = Less Satisfied (LS); 1.00 – 1.49 = Not Satisfied(NS)

Table 4 indicates the over-all assessment of the respondents on the level of consumers' satisfaction towards the services rendered by Batelec-1 in terms of personnel services they are satisfied on the mentioned aspect as evident in the composite mean 2.83. Treatment to each consumer ranked first with 3.02 and verbally interpreted satisfied. It is seen that Batelec-1 has a strong consumer relationship. The result shows that they seek improvements for themselves linked to their goals to serve as a catalyst for professionalism.

The Human Resource Department of Batelec-1 requires all its front liners to undergo trainings especially those in Consumer Welfare Desk to assure that all walk-in consumers are treated well with their desire of providing world-class service to their consumers.

On the other hand, the ultimate goal for businesses is to build strong customer relationships. As companies grow and become more complex, the need to create simplicity and provide ready access to customers becomes an imperative to achieve high satisfaction rates and win repeat business. However, the wide availability of information from competitors, fans, and detractors

can instantly change customer interactions making it difficult for organizations to control message delivery (GALE| A308005117).

Communication ability of personnel followed with weighted mean of 2.99, treatment to consumer's feedbacks ranked number 3 with weighted mean of 2.88, and handling of consumer request/complaints landed to number 4 with weighted mean of 2.79, all verbally interpreted as satisfied.

However, information program with weighted mean of 2.46 was rated less satisfied. This shows that Batelelec-1's information drive is not enough to satisfy their consumers. The respondents of this study were from the areas where communication signals are poor. Most of the information disseminations of Batelec-1 are through Text Connect in which most of the respondents were having a hard time to receive, hence, they rated Information Program as Less Reliable. Giving information in whatever form is the best way of communicating with consumers', less information means less communication. Batelec-1 is getting along of competing with consumer satisfaction requiring the integration of new technologies and a need to adapt to rapid technological change for them to thrive. In this age of globalization, it is essential for industries to have a competitive edge over consumers' satisfaction in their specific fields and the ability to respond to the ever changing demands of the consumers.

Manila Electric Company or MERALCO receives hundreds of thousands of complaint calls and consumer reports in a year through its Call Center, business offices and field operating offices or sectors. To resolve these operating troubles, MERALCO deployed several crew in the ten operating centers in its franchise area of 9,337 square km. With increasing consumer demands for outage information updates and service performance penalty schemes in the performance – based rate making regime, managing consumer complaints and resolving operating troubles become more challenging for electric distribution utilities. Immediate feedback on outage resolution milestone/updates must be provided to Call Center personnel attending to consumer calls directly from the technicians and engineers working on the troubles. By integrating its existing mobile data system with emerging Web and GPRS technologies, MERALCO has proven that new approaches can be implemented in partnership with local telecom service providers (Leynes, 2008).

Table 5 shows the common problems and complaints encountered by the consumers. Based on the over-all assessment of the respondents they disagree on the above stated problems encountered, revealed in the weighted mean 2.40.

Table 5. Common Problems and Complaints Encountered by the Consumers

Indicators	WM	VI	Rank
1. Poor quality of service	2.38	D	6
2. Poor quality of workmanship	2.26	D	7
3. Inadequate facilities and equipments	2.52	A	3
4. Equipment and utilities are not properly installed	2.03	D	8
5. Delayed action on service Request/complaints	2.51	A	4
6. Distribution lines are not properly cleared	2.39	D	5
7. Poor communication skills of Employees	1.96	D	9
8. Lack of Information Drive	2.79	A	1
9. Unavailable Consumer Hotline	2.75	A	2
Composite Mean	**2.40**	**D**	

Legend: 3.50 – 4.00 = Strongly Agree (SA); 2.50 – 3.49 = Agree(A); 1.50 – 2.49 = Disagree (D); 1.00 – 1.49 = Strongly Disagree (SD)

However, they agree that there is lack of information drive with weighted mean score of 2.79. It describes that information dissemination activities of Batelec-1 is ineffective. As stated above, the respondents of this study were from the areas where communication signals are poor and most of the information programs and immediate feedbacks on outage, interruption and other updates are being provided to consumers through text connect in which most of the respondents were having a hard time to receive, not realizing that using this method is applicable only to those areas with a good and clear communication signals.

It was followed by unavailable Consumer Hotline, inadequate facilities and equipments and delayed action on service Request/complaints with 2.75, 2.52 and 2.51 respectively. Batelec-1 is providing a pre- paid mobile phone for each crew foreman for tending to consumers and ensuring that they have a positive experience with the utility's services. However, the result shows that the respondents are looking for a Hot Line where they can get through for their concerns.

According to Leggett (2013), most customers want the option of starting an interaction with a customer service organization on one channel and continuing it on another without starting over. Customer service leaders must ensure that channels are integrated so that

agents have a full view of prior interactions. Only 35 percent of companies report that multichannel integration is one of their top priorities.

On the other hand, respondents disagree on poor quality of workmanship, equipments and utilities are not properly installed and poor communication skills of Employees. Batelec-1 practices the NEA Construction Standards, that before sending their linemen to each respective assignment, Batelec-1 assures that they pass the Basic Lineman Training Course. Aside from that, Batelec-1 has a continuous training program for linemen which had been effective to ensure that the workmanship is of high quality.

Proposed Action Plan for the continuous reliability of electric service in Batelec-1

Batelec-1 in Calatagan has to reaffirm their sense of optimism, and high ideas of integrity and creativity with an eye for excellence and service in their franchised area. The indicators that need more intense developments were the clearing of line schedule, availability of maintenance equipments and machines, interruption duration, action on complaints and request, and information program. They must work hard in shaping their services to become competitive and be counted among the country's best electric cooperative. Batelec-1 must have a good understanding of the challenges that lie ahead and make their employees more responsive to the needs of their consumers.

V. CONCLUSION

Construction and maintenance services of Batelec-1 in the selected Barangays in Calatagan are considered reliable, yet, can still be improved. Electric consumers are generally satisfied on personnel, construction and maintenance services yet less satisfied on information dissemination. The common problems and complaints from the consumers include lack of information drive and unavailability of consumer hotline. An action plan is proposed to provide continuous reliability on Batelec-1 services.

VI. RECOMMENDATION

To improve reliability on construction and maintenance services, the Technical Services Department may construct Distribution System less vulnerable to obstruction, maintain enough clearance on primary line conductors traversing forested areas, provide sectionalizers on long extended lines mostly in lateral of single phase lines, prepare for the unknown emergencies by periodic checking and cleaning of pole accessories. To meet consumer satisfaction on

information program, the Member Services Department may incorporate Member Information Services (MIS) and a provision for the Consumer Welfare Desk Officer. Users of the consumer database may be permanently stipulated to conduct regular updates of reliable databases for each MIS and CWDO. To address the common problems and complaints encountered by the consumers, Batelec-1 management may provide continuous training and provision of working tools and equipment among workers, organize the Distribution Emergency Response Program (DERP) and may also create for a single point contact for management control. Future research maybe conducted using other variables not covered in this paper.

REFERENCES

Amora, D. A., (2009). "System Reliability in Industrial Plants" The Electrical Engineer Magazine, Volume: XXXVIII Issue: 2 pp. 34 – 35.

Cambri,(2008). An Overview of Cold shrink Technology in Low to High Voltage Applications.

Chua Kok Yong (2009). Power Quality Management. The Electrical Engineer Magazine, Volume: XXXVIII Issue: 4 pp. 39.

"Customer experience management: three strategies for creating processes that Drive satisfaction and loyalty." *CRM Magazine* Nov. 2012: WP25. *Academic One File*. Web. 14 Feb. 2014.

Gallarin D. (2010). Tackling Energy Challenges Through Energy Efficiency Solutions.

Kirschen D. and Boufard F., (2009). "Keeping the Lights On and the Information Flowing" IIEE Power and Energy Magazine, Volume:7 Issue:1 pp. 50 – 60.

Leggett K. (2013).Seven steps to improving your customer service: bridge the gap between priorities and results**,** *CRM Magazine*. 17.6 (June 2013): p16. From *Academic One File*.

Leynes (2008). Operating Trouble Management Adopts Blackberry GPRS Solutions. 33rd IIEE Annual National Convention, SMX Convention Center, Pasay, City.

National Energy Technologies Laboratory (NETL) website on SMARTGRID Analysis, http: //www.netl.doe.gov/smartgrid/index.html.

Omer G. (2008). An Assessment of Power Quality and Electricity Human Right in Restructured Electricity Market in Turkey.

Tan Wu Yih (2007). Energy Management System and Power Quality Analysis.

Thomas T. M. (2013). Static and Predictive Motor Testing as Part of Predictive Maintenance Program.