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Performance of Batangas II Electric Cooperative, Inc. (Batelec II) in the Wholesale Electricity Spot Market

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Abstract - *In the face of electricity reformation, every electric cooperative needs a stable operation. The operational stability of participation in the Power Industry reformation such as Wholesale Electricity Spot Market (WESM) depends on the performance of any electricity provider and management of the problems they encountered in new environment. The study aimed to determine the level of performance of Batelec II, which will serve as basis of enhancing the energy trading transaction of Batelec II. Furthermore, it also assesses to identify the problems encountered on the WESM to arrive at a specific action plan. The descriptive method was utilized in the conduct of the study.*

The study revealed that Batelec II distribute an uninterruptible flow of electricity among its member-consumers. It also manifest that the price of electricity it serve were competitive enough. This was due to the effort and strategy of Batelec II's trading team. As part also of efficiency of the performance of Batelec II, they manage to respond to the line trouble quickly. This gives Batelec II a good rating in terms of operations and maintenance. It is noted that problems in the said matter was identified. These were the transmission failure, generation facility outages and change in law. This aspect makes the electricity price go high. In response to the problems identified, the researcher proposed an action plan for the board directors and top management of Batelec II for implementation.

Keywords- *Batelec II, Electric Company, Wholesale Electricity Spot Market*

I. INTRODUCTION

Batangas II Electric Cooperative, Inc. (BATELEC II) was organized and registered with NEA with a primary purpose of providing electrical service to both urban and rural areas. The Rural Electrification Program has not faltered in serving people and communities in far-flung areas and mountainous regions. Hence, BATELEC II's operation is not focused solely on technical improvement. Relationship with the member-consumers is likewise one of its primary concerns. From being one of the distressed category D in 2003, through the Cooperative's commitment and determination, BATELEC II was classified as extra large Electric Cooperative and categorized as Class A Cooperative (www.batelec2.com.ph).

The experience in many countries makes it fairly clear that successful implementation of liberalization reforms is not easy and that there is a risk that costly performance problems may merge when the transformation is implemented incompletely or incorrectly. California is a textbook case of reforms gone badly, though it is not at all clear that the right lessons have been learned from their experience. Wholesale market with good performance attributes have been slow to emerge in some countries. Even in England and Wales, major changes were made in the design of the wholesale market in 2001 (The Energy Journal).

Similarly, Pita (2010) stressed out different parameters that describe the performance level of Batelec II's efficiency. The paper indicates that there are different levels of scores between the unit or branch offices of Batelec II. Thus, it recommends that Batelec II should reduce its labor force to attain more efficient

outcome. This study was made in the year 2010 using 2000 to 2008 data, the period where Batelec II is not yet directly participating in the Wholesale Electricity Spot Market (WESM). As part of performance enhancing mechanism, the researcher conducted similar study with different performance measures.

The researcher being the WESM Data Analyst/Energy Trader handling the WESM operations at Batelec II, considers this requirement as an excellent venue to explore and discover expertise to have a better understanding of energy trading in the Philippines, the impact on market participants especially to the electric cooperatives particularly Batelec II. This will also serve as an eye-opener to fellow Batangueños especially Lycean people to be well-verse in the power industry evolution in the country.

II. OBJECTIVES OF THE STUDY

The study aimed to determine the overall performance of Batelec II. Specifically, it has the following objectives: to assess the performance of Batelec II in participation to WESM; to identify different problems encountered on WESM and to propose a plan of action to enhance the performance of Batelec II in the WESM.

III. REVIEW OF LITERATURE

Electric systems around the world are physically and operationally very similar. The physical functions of the industry are generation (production), system operations, transmission, and distribution. The merchant functions are wholesaling and retailing. Transmission and distribution are transport functions — the transmission wires are networked and serve large areas; the distribution wires are local. The typical organization of the industry prior to deregulation was *vertically integrated companies*, incorporating all these functions.

According to Oguz (2010), a fundamental question facing the regulatory and competition authorities is whether to delegate competition policy issues of utilities to regulatory agencies or competition authorities. While, some countries prefer 'light handed regulation' by competition authorities, others grant substantial power to independent regulatory agencies. Turkey followed the liberalization wave in electricity with a regulatory reform in 2001.

Goksu (2010) observed that Turkey is still highly dependent on foreign energy resources and the supply of electricity is still not sufficient to meet current demand. Therefore, attracting local and foreign investments is vital in order to ensure supply security and establish a competitive and transparent market in the future.

In the USA, deregulation of the electric power sector started with Public Utility Regulatory Policies Act in 1978. This act facilitated the creation of new electric power generators called Non-Utility Generators, which were not considered electric power generation utilities. The existing electric power utilities were put under an obligation to purchase excess electricity from renewable energy businesses and cogeneration businesses. Federal regulations and directives such as EPAct (Energy Policy Act) and FERC Order No. 2000 promoted the development and liberalization of the electricity wholesale sector. In 1997, liberalization of the retail sector was undertaken by each state. Several states have now introduced retail choice for the consumer and many regions have established independent system operators or ISOs (Nagayama, 2006).

The electric power industry in many countries all over the world is moving from a centralized operational approach to a competitive one. For instance in Iran, generating companies (GENCOs) submit generation bids and their corresponding bidding prices, and distribution companies (DISCOs) do the same with consumption bids. The market operator (MO) uses a market-clearing tool to clear the market. This tool is normally based on single-round auctions. The pricing mechanism is an important issue, in the electricity markets. It can be either uniform pricing (UP) or pay-as-bid (PAB) pricing. In these markets, the maximum accepted bid block sets the market-clearing price (MCP). Under the UP structure, MCP is paid to every winning block. In the PAB structure, every winning block gets its bid price as its income.

Therefore, proper bidding strategy is critical in profit maximizing in the electricity markets and so the bid blocks should be generated regarding the market price indices. Usually, there is limited information about market indices. Therefore, producers and consumers rely on price forecast information to prepare their corresponding bidding strategies. If a producer/consumer has a good forecast of next-day MCP's, it can establish a bidding technique to achieve its maximum benefit. This requirement is highlighted more as the exchanged energy in the market experiences hourly, daily and seasonal oscillations which are related to calendar, climate and other reasons such as petrol cost. This property and the required balance between generation and load cause volatility and even spikes in electricity price. The nature of this

volatility is directly related to the degree of predictability of the price and is the main reason of lack of accuracy in price forecasting as well (Bigdeli & Afshar, 2008).

In the Philippines, same nature of energy trading transaction with regards to GENCOs is implemented (demand bidding). However, with regards to DISCOs like Batelec II and Meralco, demand bidding is absent. DISCOs trade in the marketplace by submission of Bilateral Contract Quantity (BCQ) Nomination to its bilateral supplier (GENCOs). Their power suppliers (GENCOs) are the one declaring its BCQ Nomination to the market operator (WESM). BCQ Nomination is the amount of energy a certain DISCOs require to its bilateral power supplier. It is expressed in *kilowatt-hour (kwhr)*. Of course, this Bilateral Contract incurs cost. This could be settled by DISCOs to its supplier by means of bilateral contract price. Bilateral contract price is expressed as *peso per kilo watt hour (php/kwhr)*. By principle, any shortage of BCQ Nomination nominated by Batelec II to its power supplier (BGI-Bac-Man Geothermal Inc.) will be automatically source out (WESM Purchase) from the WESM. Shortage in BCQ can be determined if the Metered Quantity (MQ) is higher than the BCQ. Metered Quantity is the amount of energy that can be read in the DISCOs metering point. It is expressed also *kilowatt-hour (kwhr)*. Any excess of BCQ Nomination will be automatically sold (WESM Sales) to the WESM. When we net out the WESM intake and injection of energy in the WESM it is termed as the *Total Trading Amount*. Thus: If BCQ > MQ: WESM Sales; If BCQ < MQ: WESM Purchase (WESM Rules Market Manuals, 2006).

In the last twenty years, a large number of developed and developing countries have introduced major electricity sector reforms which have altered significantly the sector's market structure and institutional framework. Although the approaches to reform have varied across countries, the main objective has been to improve the economic efficiency and growth of the sector by introducing private capital, liberalizing markets and introducing new regulatory institutions. In developing countries, the driving force of reform was the persistently poor economic and financial performance of the publicly owned electricity utilities, which governments and international donors, such as the World Bank, were no longer able or willing to support.

In the paper of Da Silva (2006), under the deregulated framework of the electricity industry, the activity of providing transmission service has been considered as a regulated monopoly. When transmission service is offered separately from the system operation, regulatory agencies usually define a basic payment for each transmission facility, which is defined by means of using performance indexes that will ultimately establish the value paid for the service. A possible approach to promote the maximization of each transmission facility's availability is to reduce the payment to the transmission provider whenever specific outages occur.

Finger (2007) states that Risk evaluation and strategic choice has become very complex for power providers, because of the growing number of uncertain parameters involved, such as energy market prices, water inflow, and demand. The lack of information and the absence of the decision maker's perception are just some of the many elements that must be accounted for. In a simultaneous study, Estache *et al.* (2008) proved that the combination of labour and capital in South Africa has not been used more effectively to generate increased electricity, while the technological opportunities have been better utilized to increase the volume of electricity generated, thus reaching more customers and improving sales significantly over a 6-year period.

Nakano and Managi (2007) conducted a study in Japan which presented a positive effect of regulatory reforms on productivity. Productivity growth was a fundamental source of improvement of economic welfare and there has been a keen interest in correctly analyzing productivity, especially total factor productivity (TFP). Companies which have the ability to shift frontier upwards have the possibility of receiving greater benefit from regulatory reforms.

Furthermore, Hess and Cullman (2007) focused their studies on the robustness of structural difference of technical efficiency scores between East German and West German electricity distribution companies. Results of all Data Envelopment Analysis (DEA) model specifications showed variability in the Technical Efficiency (TE) levels apart from a robust efficiency gap under return to scale (CRS) Technology. In the variable returns to scale (VRS) case, the outcome looks different: The separate treatment of aerial lines and cables leads to a reduction and additional consideration of various customer services, even showing that the West German distribution system operators (DSO's) are more efficient.

In Hunt (2002), Performance-based ratemaking (PBR) for Distcos or electric cooperatives in general is a good idea because it provides incentives for those who expand, operate, and maintain the distribution system to

increase efficiency (and their profits). Based from the paper of Wang (2008), there have been significant expansions of the wholesale electricity market where a utility can sell its excess power day-ahead or real-time. In spite of these expectations, traders still in practice make often subjective and haphazard trading decisions based on their experiences and intuitions on profits and financial risks. In the article of Abbott (2010), one of the most important reforms was the restructuring of the electricity industry.

While study of Gianfreda (2012) says that, in the last few years it was observed the deregulation in electricity markets and an increasing interest in price dynamics had been developed especially to consider all stylized facts shown by spot prices. Only few papers have considered the Italian Electricity Spot market since it has been deregulated recently.

Based from Jocko (2006), market power is a significant potential problem in electricity markets, but the cure can be worse than the disease, trying to deal with potential market power structurally ex ante rather than ex post. The potential for market power to be a particularly severe potential problem in electricity markets was recognized many years ago and was reinforced as the reforms in the UK were implemented in 1990 and those in California in 1998. Generator market power was a serious problem for several years following the launch of the privatization, restructuring and competition program in the UK.

Another problem identified was discussed in the paper of Toba (2007), the crisis followed the Government's substantial steps to strengthen National Power Corporation both operationally and financially. Moreover, because its existing capacity was considered sufficient to meet projected increases in demand through to about 1991, although NPC did have sufficient lead time to implement least cost additions to its generating capacity; it did not make use of the time to invest in new capacity.

Also, in the paper presented by Mendoza (2008), she implies some issues and concerns related to WESM and industry reforms. She stated that these may enable consumers to choose their electricity supplier, distributor, or generator and reduce the number in the captive market. However, unlike telephones, for example, electricity cannot be held and stored, or considered a unit. The spot market may introduce competition as more players may participate in the buying and selling of electricity.

Furthermore, Oggioni and Smeers (2012) stated on their study that cross-border trade remains a contentious issue in the restructuring of the European electricity market. Their paper analyzes the cross-border trade problem through a set of models that represent different degrees of coordination both between the energy and the transmission markets and among national Transmission System Operators (TSOs). Institutional difficulties related to congestion management in Europe have been particularly acute and long lasting. They concentrate on the organization of cross-border trade among Member States, a problem that stakeholders have now been discussing since 1998.

III. METHOD

Research Design

The study used a descriptive method to measure the efficiency performance of Batangas II Electric Cooperative, Inc. (BATELEC II) in the participation in the WESM. Descriptive research is concerned with the description of data and characteristics about a population. The goal is the acquisition of factual, accurate and systematic data that can be used in averages, frequencies and similar statistical calculations.

Participants

The respondents of the study are the contestable market customers of Batelec II and its captive market customers. Contestable market customer means customer of Batelec II who has a twelve (12) months average demand of one (1) mega-watt. Technically, there are nine (9) contestable customers of Batelec II. These are Nestle, Ingasco, SM City Lipa, Robinsons Place Lipa, PKI, Walter Mart, CDO, San Miguel Purefoods and PLBSC. On the other hand, captive market customer pertains to below one (1) mega-watt of demand. For the captive market customers, the proposed participants are 50 residential customers at the 2 cities of Lipa and Tanauan plus 2 municipalities of Malvar and San Jose, Batangas. This would constitute 200 residential customers as participants of the study. These areas are selected among the franchise areas of Batelec II because these are the locations as well of their contestable market customers are located.

In addition, from the total population of residential communal of 90,711 from the four area of Tanauan, Malvar, San Jose and Lipa, a total of 208 were the sample of the study using 7 percent margin of error. The respondents are selected at random and chosen using stratified proportional allocation.

Instrument

The researcher used a questionnaire primarily to collect responses and/or vital information from the member consumers' satisfaction on BATELEC II electricity service, electricity rates and choice of electricity supplier. The questionnaire was prepared and modified by the researcher patterned from the Key Performance Indicator (KPI) set by the National Electrification Administration (NEA) as a standard for all the electric cooperatives in the country.

For the purpose of data validation, the researcher conducted validation of the questionnaire by securing a reaction position of the researcher's immediate division head. Attached herewith is the documented paper for reference.

In addition to the foregoing, the researcher undergone a reliability test of the questionnaire with the school's statistician. Ten (10) questionnaires were distributed as part of validation of the survey. The sample results were run using statistical method and based from the Cronbach alpha result of 0.882, it was observed that it is reliable and the items are accepted. However, item 1 on the performance need to be modified since the corrected item – total correlation is small same with items 8 and 10 on the problems encountered. In response to item 1 of performance questionnaire and items 8 and 10 of problem questionnaire, the researcher revised the questions and proceeded to the execution of the distribution of the questionnaires. Moreover, the retrieval of the questionnaires was within the day.

Procedure

The distribution of the questionnaires was personally conducted by the researcher and some trained personnel of Batelec II. To be able to distribute the questionnaire to the target respondents, who are the member-consumers, the researcher asked permission from the top management of Batelec II through a formal letter.

The target time frame for the accomplishment of the questionnaire for the employees is at most 1 week and 2 weeks for the member-consumers. The questionnaires are pre-numbered to be able to account for any missing questionnaire.

Data Analysis

All data gathered were tallied and interpreted using descriptive statistics, where weighted mean was the main statistical tool used. A four point Likert – Scale was also applied to further analyze the results and supported using PASW version 18.

IV. RESULTS AND DISCUSSION

Table 1. Performance of Batelec II in Participation in the WESM (N = 208)

Performance of Batelec II Batelec II…	WM	SD	VI
1. is providing reliable means (consistency of electric service without blackouts, power surges or periods of low power) of electric service.	4.27	0.627	Very Good
2. supplies energy in economical costs.	4.24	0.579	Very Good
3. quickly responds on line trouble especially during Force Majeure event.	4.19	0.673	Very Good
4. supplies energy with high security and safety.	4.11	0.620	Very Good
5. engages in I.T. developments in order to improve their service especially for power supply delivery and trading of energy.	4.10	0.614	Very Good
6. rebuilds its labor work force as part of reformation in the power industry such as WESM.	4.05	0.650	Very Good
7. gives discount to customers on their power bill because of Collection Efficiency/Prompt Payment Discount and other rate reduction as per ERC orders.	3.93	0.644	Very Good
8. conducts information drive to have updates on power industry.	3.87	0.703	Very Good
9. Batelec II has a proper coordination with regards to scheduled and unscheduled power interruption.	3.69	0.675	Very Good
10. allows consumers a choice of electricity suppliers which ensures competitive rates.	2.95	1.018	Good
Composite Mean	**3.94**	**0.3689**	**Very Good**

Legend: 4.50 = 5.00 = Excellent; 3.50 – 4.49 = Very Good; 2.50 – 3.49 = Good; 1.50 – 2.49 = Fair; 1.00 – 1.49 = Poor

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As seen from the table, the over-all performance of Batelec II in WESM was very good with composite mean of 3.94.

Among the items mentioned, Batelec II is very good in providing reliable means (consistency of electric service without blackouts, power surges or periods of low power) of electric service which ranked first with mean value of 4.27 and followed by supplying energy in economical costs (WM=4.24), ranked second and quickly responding on line trouble especially during Force Majeure event, (WM=4.19) and ranked third.

It can be noted that providing reliable means of electric service to its member-consumers means consistency of service without brownouts or power surges.

This was also the feedback of the respondents due to their own experience in the consumption of electric supply. WESM is a product of power industry regulatory reforms such as implementation of the commercial operation of WESM in the Philippines, having a positive effect.

This is justified in the paper conducted by Nakano and Managi (2007) when a positive effect of total productivity factor of a certain distribution utility resulted from total factor productivity (TFP).

Establishment of WESM in the Philippines is a product of EPIRA Law. Batelec II starts participation in the WESM on March 2010. Since EPIRA Law has many challenges, Batelec II manages first its wires business operation before entering in WESM commercial operation. This was the direction envisioned by Batelec II's Board of Directors together with the top management and results to a continuous flow of supply of electricity in its coverage areas. Thus, makes Batelec II reliable in providing electric service.

In relation to the above statements, Batelec II demonstrates accomplishments through various projects such as Relocation of 5MVA Mabini sub-station (2009); Installation of AVR in Malvar sub-station for Walter Mart feeder voltage correction (2010); Construction of 10MVA Padre Garcia sub-station (2010-2011); and other projects for rehabilitation/revamp/upgrading projects. These activities are only few of the tasks performed by Batelec II in order to provide reliable electric service to its member-consumers (Batelec II's 2011 Annual Report).

Batelec II is providing value to its member-consumers by supplying an economical generation rate. The result entails that Batelec II's member-consumers are satisfied with the cost of the electricity they consumed. To best see the rate reduction, it could be conceptualized by looking at Batelec II's monthly trading report. Below is the rate impact analysis that was expressed in table form for the December 2012 billing month.

Table 2. Rate impact analysis for the December 2012 billing month

Particulars	Qty (kwhr)	Amount [php]	Gen. Rate [php/kwhr]	Remarks
BCQ	60,988,500	291,310,173	4.7765	Basic Energy as per BGI's Invoices
AMQ	59,627,446	244,097,526	4.0937	if 100 % AMQ [no WESM]
MQ	58,612,678	247,798,932	4.2277	if 100 % NGCP [no WESM]
WESM Purchase	1,276,290	7,164,230	n/a	
WESM Sales	2,637,344	20,352,500	n/a	
WESM Net	(1,361,054)	13,188,270	n/a	
BCQ + WESM	59,627,446	278,121,903	4.6643	exclusive of VAT and other adjustments

Based on the table 2, Batelec II sell-off 1,361,053.84 kWh with a net settlement amount of P 13,188,270.00 to the spot market. The amount to be received from PEMC was applied as reduction in the coop's generation rate computation for the month.

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Similarly, the finding supports Steiner's (2000) claim that market liberalization led to lower prices and that capacity utilization was higher under private ownership and vertical unbundling.

The introduction of economical generation rate to Batelec II's member-consumers is by the form of rate reduction. This is achieved primarily by having trading strategy of Batelec II's trading team. They manage to forecast the precise load profile and price behavior in the spot market by constantly monitoring the aspect or determinants that affects the price movements. The areas that trigger prices movement are the weather, economic activities, fuel and oil costs, foreign exchange rates and many more.

The data gathered from different sources was then contemplated to determine amount of energy that must be source out from WESM and from the power suppliers. Generally, Batelec II source out electricity during the off peak hour from the WESM and conversely purchase energy from their bilateral contract during peak hour. Off-peak hour is from 11p.m. to 9 a.m. where there is low consumption of electric activities. Peak-hour however, is from 10 a.m. to 10 p.m. where there are many consumption activities.

Historically, during off-peak hour the energy prices in the spot market are lower than bilateral contract price. In this scenario, it is better to source power from WESM. Consequently, during peak hour the energy prices in the spot market are higher compared to bilateral contract price. Logically, it is better to source energy from power supplier.

Findings also indicate that Batelec II quickly responds on line trouble. This is an indication of the competitiveness of the performance in terms of attending to consumers' complaints about power supply. One of the measures that Batelec II achieved is the rehabilitation and clearing operation of distribution lines in some coverage areas. Batelec II also managed to install additional sub-station in two of their franchise areas to address line congestion and overload of capacity. With such development, less brown-out and more accurate trading task are gained through this outcome.

The following indices are the System Average Interruption Frequency Index (SAIFI), System Average Interruption Duration Index (SAIDI) and Momentary Average Interruption Frequency Index (MAIFI). SAIFI shall be defined as the total number of sustained Customer power interruptions within a given period divided by the total number of Customers served within the same period. SAIDI shall be defined as the total duration of sustained Customer power interruptions within a given period divided by the total number of Customers served within the same period. MAIFI shall be defined as the total number of momentary Customer power interruptions within a given period by the total number of Customers served within the same period.

Year	**2009**			**2010**		
	SAIFI	**SAIDI**	**MAIFI**	**SAIFI**	**SAIDI**	**MAIFI**
Total	28.52	2100.21	58.69	19.13	863.9	52.37

Year	**2011**			**2012**		
	SAIFI	**SAIDI**	**MAIFI**	**SAIFI**	**SAIDI**	**MAIFI**
Total	14.2132	494.241	47.9523	8.45	390.24	39.78

Based from the table above it can be noted that reliability of electric service for Batelec II is improving from 28.52 of 2009 to 8.45 of 2012 for SAIFI and so on. This is also an indication that Batelec II quickly responds to power trouble given the above figure of indices. These data shall be submitted to Energy Regulatory Commission (ERC) as part of the compliance to the regulator. This as well is in accordance with Republic Act 9136 – Distribution Code section 3.3.

However, allowing consumers a choice of electricity suppliers which ensures competitive rates ranked the least with 2.95 and the only item interpreted as Good. This was the major response of the member-consumers since the choice of electricity depends on the trading strategy of Batelec II's trading team and not yet for the part of member-consumers.

As of now, the choice of electricity among end-users is done through energy trading. Batelec II energy traders may source electricity from WESM or to power

supplier whichever is lower. In this manner, choice of electricity can be gained. However, Batelec II's trading team is doing it for the end-user. Sooner member-consumer will be the one to source out directly to the WESM when Retail Competition and Open Access commences in full commercial operation. This is the reason why the item number 10 is the least in the rank being interpreted as Good.

The establishment of the WESM will facilitate a transparent and competitive electricity market for the country. It will serve as an efficient venue for the trading of electricity to ensure that generation is balanced with the ever-changing demand for electricity.

The WESM is designed to encourage competition in generation while at the same time providing incentives for the effective operation and development of the transmission networks, coupled with locational price signals to encourage the economically correct geographic placement of any future planned generation.

With competition as the key driving factor, efficiency gains are expected to arise in the short and long term. In the short-term, efficiency gains will result from pressures on electricity businesses to reduce costs, align prices and tariffs with costs, and use of assets more efficiently. In the longer term, as new competitors emerge in wholesale power generation, the efficiency gains are likely to be more substantial.

The spot market provides economic price signals to generators, customers, and network service providers to assist them in their alternative investment options for new generation capacities, demand side management (e.g. consumption curtailment in response to high prices), and network expansions. These price signals are also important in terms of the signals they provide to competing energy sources (www.wesm.ph).

Table 3. Problems Encountered by Batelec II in Participation to the WESM (N = 208)

Problems	WM	SD	VI	Rank
1. Volatility of prices in the Spot Market	3.40	0.590	Often	4
2. Change in law that affects existing contract/s [ex. Amendments on the WESM Rules and other directives of ERC]	3.41	0.574	Often	3
3. Generator/Plant Outages/Maintenance: When a certain power plant of a certain power supplier is on shutdown especially here in Luzon - - rotating black-outs occur	3.54	0.563	Always	2
4. Transmission Facility/Maintenance: When the transmission facility of the system operator (NGCP) is under maintenance, rotating black-outs occur.	3.57	0.602	Always	1
5. Foreign Exchange fluctuations contribute to increase in power rates	3.31	0.576	Often	5
6. Fuel Cost: Oil price increase result to higher power cost thus making the power bill higher	3.25	0.560	Often	6
7. Anti-competitive behavior of power supplier transpired by holding the electricity supply -- result to high electricity rates	3.13	0.638	Often	7
8. Lower collection efficiency percentage results to zero discounts for Batelec II's member-consumers. Thus, makes financial settlement to the WESM delayed. [ex. Delayed payment of SM and Waltermart]	3.01	0.625	Often	8.5
9. Cross-ownership of a certain business entity between generation facility and distribution utility results to conflict of interest [ex. Meralco owns the generation facility as well as the distribution facility]	2.94	0.579	Often	10
10. Political risk/pressure from a certain public office especially during election period contributes to inefficiency of any electric cooperative here in the country	3.01	0.752	Often	8.5
Composite Mean	**3.26**	**0.349**	**Often**	

Legend: 3.50 – 4.00 = Always; 2.50 – 3.49 = Often; 1.50 – 2.49 = Seldom; 1.00 – 1.49 = Never

Based on the table, the respondents often experience problem in their participation to WESM as revealed by the composite mean of 3.26. Transmission Facility/Maintenance explains that when the

transmission facility of the system operator (NGCP) is under maintenance, rotating black-outs occur. It is always their problem since it obtained the highest mean of 3.57, followed by a problem in a Generator/Plant Outages/Maintenance. When a certain power plant of a certain power supplier is on shutdown especially here in Luzon - - rotating black-outs occur. It established a weighted mean of 3.54 and verbally interpreted as always a problem, followed by Change in Law that obtained 3.41 weighted mean.

Specifically, the Transmission Failure was the main problem of Batelec II in the participation in the WESM. Transmission failure happened when facility of the transmission company is on shutdown or in maintenance.

There are two kinds of transmission failure. This can be categorized as scheduled and unscheduled maintenance. The scheduled maintenance is planned and conversely, unscheduled maintenance is unplanned or those emergency situation that occurs especially during weather disturbance. This also includes volcanic eruption activities, rebellion, acts of war, labor disputes and other unpredictable thing that's Force majeure in nature. On the other hand, scheduled maintenance is those activities or task that is included in the development plan of NGCP. It may vary from weekly to monthly to annually work plan depending on the economic and political activities of a certain areas. For instance, year 2013 has upcoming national and local elections, with this it's only logical to have a scheduled maintenance during the first quarter of 2013 to avoid power interruption in the month of May elections period. This was also in accordance with the directives of the Department of Energy.

It results to black outs that most of member-consumers do not want. Through this transmission failure, trading strategy of Batelec II's trading team automatically commits large percentage of margin error because the energy forecast for delivery of generation facility to a certain distribution utility like Batelec II and Meralco is not realized due to this Force Majeure Event.

Since transmission facility is owned by National Grid Corporation of the Philippines (NGCP), transmission failure is beyond the control of Batelec II.

Furthermore, this technically results to line congestion; thus, results to high prices in the WESM. With these, there is a need for Batelec II to address this issue to the top management for appropriate actions.

The generation failure was the next problem in the WESM transactions. This likewise elevates the electricity market prices in the spot market. This is related to the study of Murray (1998). He discussed that less generation supply would not align the demand of the consumers that would result to shortfall of supply. Given the untoward incident, it clearly manifests non-competitive electricity rates in the country.

Specifically, generation outages would not result to outright black-outs. Even though there are inadequacy of supply in the Luzon grid, there is still power because some generators are scheduled for energy reserve that can be called by the system operator to run whenever there are shortage in the supply. In this view, it became the second in rank because most of the respondents do not feel the effect physically compared to transmission failure wherein an outright black-outs will occur.

The third in rank is the Change in law that affects existing contracts. This problem arises due to fact that power industry evolution entails law amendments. Compared to other countries, energy industry in the country has just begun. Therefore, the respondents are aware that many things will change when certain law has passed. For example, the Feed in Tariffs for the renewable energy sources has not yet been in place. But sooner or later it will be fully implemented and the rate structure will be affected also.

Relative to the above concern, Goksu (2010) manifest in his paper that Turkish electricity market is on in its way also for industry reformation. In this respect, fundamental regulatory changes have been made in the Turkish electricity market, previously dominated by the state. However, Turkey still lacks a sufficiently attractive energy market for foreign and local investors. It is the duty of the Turkish government to render attractive energy market conditions and regulatory environment for investors. This article looks into the structure of the Turkish electricity market. Various issues under the current system which may facilitate or hinder investors will also be evaluated, along with recommendations to improve the current market conditions.

Contrary to the situation here in the Philippines, the power industry is not yet on its maturity stage, thus the response of the participants to the table of Problems Encountered on the WESM directs to Change in Law. In order for the market to be attractive to foreign investors is for the Law to be stable and not unpredictable.

In response to this scenario, Batelec II does regular conversations with its stake holder both power supplier and customer to address such issues in the Change in

Law. In this regard, all parties will be in win-win situation.

Consequently, Mendoza (2008) says that Electricity reforms or Change in Law will not translate to competition overnight especially in countries like Philippines which have been used to monopoly provision and distribution of power supply. But these reforms are slowly inching their way in institutions and stakeholders, through regulatory and competition frameworks, processes and systems promulgated and implemented.

Generally, the results of these reforms are in laying the groundwork for competition, e.g., an industry that was restructured into four sectors, functions of industry players that were redefined, new institutions were established to shepherd competition like WESM and the ERC, rules for privatization, deregulation and open access developed and promulgated.

On the other hand, lower collection efficiency percentage results to zero discounts for Batelec II's member-consumers. Thus, makes financial settlement to the WESM delayed. [Ex. Delayed payment of SM and Waltermart] (3.01), political risk/pressure from a certain public office especially during election period contributes to inefficiency of any electric cooperative here in the country (3.01) and cross-ownership of a certain business entity between generation facility and distribution utility results to conflict of interest [ex. Meralco owns the generation facility as well as the distribution facility] (2.94) were the least among the problem/s encountered.

The reaction of the respondents to cross-ownership is the least among the problem. Batelec II is owned by the member-consumers it serves. It is a non-stock non-profit organization and has no capability of owning a generation facility. This was by the virtue of Presidential decree # 269 signed by President Ferdinand Marcos with the aim of total rural electrification in the country. Thus, makes the problem least among the set of questions and easy to manage.

Proposed Action Plan to Enhance the Performance of Batelec II in the WESM

The preceding table presents the proposed action plan where Batelec II must manage the technical aspect of the problem. The researcher gives main emphasis on the first three problems as the result of the statistical survey ranking. The three problems are relatively connected to each other. This could be done specifically, by reconfiguring the power distribution design of its network system so that when unavoidable NGCP-transmission failure occurs in a certain delivery point area, they can manage to divert the affected areas of black-outs to the delivery point that has no transmission failure. In this way, affected areas of power interruption will be lesser.

However, this technical task entails financial attention. The modification will be costly but will assure boost of reliability performance of Batelec II. To be able to realize the goal, Batelec II must first include the work plan to have budget allocation on the said matter.

The next activity that should be considered to address the issue on the Transmission facility is the acquisition of sub-transmission assets of NGCP. Based from the EPIRA Law, it is not in the mandate of NGCP the maintenance of sub-transmission asset in the Luzon regions. NGCP main focus is the transmission asset that was then deployed by National Power Corporation (NPC). The sub-transmission asset/facility was technically categorized as the power lines with 115kv and below capacity while transmission asset/facility were categorized as the power lines above 230 kV lines. Again, this task would entail cost and need to have a financial budget on it.

Geographically, the sub-transmission asset of NGCP that must be disposed through different capable stakeholders such as Meralco and Batelec II lies along the franchise area of Batelec II and Meralco. Detailed discussion and concerns with different stakeholders must be legally resolved before possible dispute occurs.

Moreover, this agreement is subject for the approval of the special government agency that acts as a regulator of energy in the country. The Energy Regulatory Commission (ERC) as the regulating body will conduct a public hearing as compliance for the approval of such acquisition. Upon the approval of the ERC, Batelec II may start upgrading all problematic sub-transmission facilities to avoid power interruption. Thus, it would lessen line congestion from the Luzon grid that results to electricity price volatility.

Upgrading of sub-transmission asset is not the end of the task of the any public or private electricity provider in the country. Regular check-up and monitoring of its capacity must be done to see condition of the facility. Relative to this, clearing of lines such as cutting of nearby trees branches must be done in order to avoid possible power surges especially in the rainy season.

Another dimension of problem that must be given an emphasis is the Generator/Plant Outages/ Maintenance. Because the prices in the WESM and

other electricity market in the world is demand driven, it is in nature that once a certain power plant is on shutdown, the tendency is the prices to go up. This corresponds to the law of supply and demand that clearly states the behavior of prices of product and service or commodity such as electricity.

Naturally when a certain power plant is not online the prices in the spot market rises. In this regard, it is only better for Batelec II to purchase electricity from its power supplier rather than sourcing out from the WESM. Consequently, if the prices in the spot market drop, Batelec II should take the full advantage of the low prices. This trading strategy is for the benefits of Batelec II's member-consumers.

Batelec II may have one or more bilateral contract depending on the capacity offer of the various power suppliers in the country and depending on the power demand of Batelec II. Currently, it has fifteen (15) years duration of term contract with GNPower Mariveles Coal-Fired PowerPlant, Ltd. (GMCP). Batelec II may add up additional contracted capacity with GMCP if it has available capacity. Batelec II may either contract out to other power supplier such as Aboitiz Power, SMEC and FirstGen. This power contracting is very essential because it shields Batelec Ii from the volatile prices in the WESM.

Nevertheless, Batelec II should first select the best power supplier that could give a most responsive offer through a competitive selection. In here, different term sheet offer must be reviewed in order to arrive at the best one. Financial and technical aspect should be considered. Rate simulations must compute in order to find out the most financial responsive offer. Likewise, in order to have technically viable power supplier, Batelec II may physically visit the power plant of every generators in order to have a technical inspection of the capacity or the condition of the plant.

Negative effects of Transmission failure and Generation/Plant Outages results to spikes in electricity market prices. This could be avoided by stipulating a provision in the power supply contract/bilateral contract that during this event, energy trading transaction may be revised if wish by the requesting party.

There must be a Change in Law clause in the contract in order address reformation in the power industry. In this way, both parties can adjust to the new environment brought up by changes in law.

Volatility of prices in the spot market is one of the issues in the participation to WESM. Having exposed on the market is very risky because it's quite hard to predict the prevailing market clearing price. So in order to minimize the risk in the WESM, the researcher strongly recommends entering a bilateral contract with Batelec II's full power requirement. In this way, Batelec II will have a shield on the volatility of prices in the WESM. Thus, will avoid high rates of electricity and will as well address other problems in the WESM be resolved.

As part of marketing strategy, Batelec II may engage also in strategic alliance with its power supplier. This will lead to competitiveness and strengthen its marketing arm.

There is also a need to educate the respondents on the changes on the power industry. This will serve as an orientation for them to be knowledgeable in the proper usage of electricity. Likewise, it will as well address the safety and security aspect of it.

In order for Batelec II to give discount to its member-consumers, Batelec II must first enhance its collection efficiency. This could be done by adding up more "bayad-centers"in every franchise area. In this way, collection transaction will be fast track. Another is to reduce its meter reading and billing cycle business process. This could be done by injecting right technology to eliminate manual and redundant task of each labor work force.

CONCLUSIONS AND RECOMMENDATIONS

Batelec II performs very well in the Wholesale Electricity Spot Market. Batelec II encounters problems in transmission maintenance and generator/plant outages/maintenance. The proposed plan of action is formulated to enhance the performance of Batelec II in the WESM.

Batelec II may continuously maintain the performance in rendering quality service through WESM. Batelec II may submit development plan to the system operator to address the identified problem. The proposed action plan may be discussed for possible implementation and evaluation. Future research may be conducted about WESM using other variables.

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