

Republic of the Philippines
ENERGY REGULATORY COMMISSION
 San Miguel Avenue, Pasig City

IN THE MATTER OF THE
 APPLICATION FOR APPROVAL
 OF THE EMERGENCY
 REPLACEMENT OF ONE (1) 83-
 MVA POWER TRANSFORMER
 AT BALINTAWAK SUBSTATION,

RECEIVED BY

AM

16 SEP -1 AM 1:48

RECEIVED BY
 DOCUMENT/RECEIPT NO.

ERC CASE NO. 2016-166-Rc

**MANILA ELECTRIC COMPANY
 (MERALCO),**

Applicant.

X-----X

APPLICATION

Applicant **MANILA ELECTRIC COMPANY (MERALCO)**,
 through the undersigned counsel, and to this Honorable Commission,
 most respectfully avers that:

1. Applicant is a private corporation duly organized and existing under the laws of the Republic of the Philippines, with principal office located at Lopez Building, Ortigas Avenue, Barangay Ugong, Pasig City. It may be served with notices and other processes of this Honorable Commission through its undersigned counsel at the address indicated herein.

2. Applicant has a legislative franchise to construct, operate and maintain an electric power distribution system for the conveyance of electric power to the end-users in the cities and municipalities of Metro Manila, Bulacan, Cavite and Rizal, and certain cities/municipalities/barangays in Batangas, Laguna, Quezon and Pampanga, pursuant to Republic Act No. 9209.

3. Applicant seeks the Honorable Commission's approval of its emergency CAPEX project for the replacement of the defective Balintawak Power Transformer Bank No. 6.

4. The two main project components of the emergency project are: (a) temporary installation of an 83-MVA, 115 kV-34.5 kV, three (3)-phase power transformer with NLTC; and (b) permanent installation of a new 83-MVA, 115 kV-34.5 kV, three (3)-phase power transformer with OLTC.

5. The Application is filed pursuant to the Honorable Commission's Resolution No. 26, Series of 2009, entitled: "*Resolution Amending the Rules for Approval of Regulated Entities' Capital Expenditure Projects*". Emergency Capital Expenditure projects are those that require immediate implementation during an event that is not a force majeure or fortuitous event in order to maintain safe, reliable, secure and efficient operation of the power system.

6. However, for purposes of recovering the capital cost of the emergency project through the DU's rates, the same will go through the process of evaluation by the Honorable Commission during the regulatory reset of the DU, unless there is basis for a rate-reopening in the current regulatory period, in accordance with the Rules for the Setting of Distribution Wheeling Rates (RDWR) for DUs.

BACKGROUND

7. The Balintawak Substation is located at Lot 1, EDSA, Brgy. Apolonio Samson, Balintawak District, Quezon City. The Power Transformer Banks in said substation are Power Transformer Banks Nos. 1, 2, 3 and 7, which have a rating of 230kV-115kV, and Power Transformer Bank Nos. 4, 5 and 6, which have a 115kV-34.5kV rating. However, Power Transformer Bank Nos. 4, 5 and 6 are only drawing power from Bank Nos. 1, 2, 3 and 7.

8. On 20 June 2016, Balintawak Power Transformer Bank No. 6 was tripped out by transformer differential relay through its lockout relay due to exploded secondary bushing (X3).

9. On 21 June 2016, the power transformer was immediately subjected to initial test after replacing H1, H2, H3 and X3 bushings, secondary lightning arresters and insulators from both the transformer and 34.5kV switchgear which were damaged due to electric arc and shrapnel during explosion. The test results showed critical low insulation level between Primary Winding to Ground and between Secondary Winding to Ground. As a remedial measure, the power transformer was subjected to hot-oil circulation from June 22 to June 26, 2016 so as to improve its performance and condition.

10. On 27 June 2016, final confirmatory electrical test was conducted. Based from the results of the tests, the power transformer was no longer safe to be energized and was declared for replacement due to the following significant findings: (a) High % Insulation Power Factor (IPF) on H-G and X-G windings; (b) Increased in dielectric watts loss of H-G and X-G winding insulations; (c) Low insulation resistance on H-G and X-G windings; (d) Low insulation resistance between core and ground; and (e) Increased in primary excitation current in all phases as compared to the previous test results.

11. Accordingly, from 20 June to 28 June 2016, the loads of Balintawak Transformer Bank No. 6 had to be transferred to adjacent power transformers with 115kV-34.5kV rating namely, Balintawak 83-MVA Bank No. 5, Sta. Mesa 83-MVA Bank Nos. 5 and 7, Bagbaguin 83-MVA Bank No. 1, Diliman 83-MVA Bank No. 3, Kamuning 83-MVA Bank No. 2, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

12. However, when Banawe Substation was commissioned on 29 June 2016, Banawe power transformer bank was able to permanently accommodate at normal load level the portion of loads of Balintawak Transformer Bank No. 6 that were previously transferred to Sta. Mesa 83-MVA Bank Nos. 5 and 7, Bagbaguin 83-MVA Bank No. 1, Diliman 83-MVA Bank No. 3, Kamuning 83-MVA Bank No. 2.

13. Nonetheless, there was still a need to temporarily shift the other remaining portion of loads of the Balintawak Power Transformer Bank No. 6 to adjacent power transformers particularly, Balintawak 83-MVA Bank No. 5, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

14. With such a set-up, Balintawak Bank No. 5 at and Grace Park 83-MVA Bank No. 1 were operating at critical level at 78% and 72% respectively. With the critical loading of the said power transformers, any outage of these power transformers may result to prolonged and massive interruption in the affected areas. In particular, the same will adversely affect the supply of electricity to customers in said areas which include Universal Steel Smelting Corp., Inc., Trinoma North Triangle Depot Commercial Corp., Light Rail Rectifier Substations, Maynilad and Manila Central University Hospital.

15. Considering the adverse effect of shifting the loads of said failed power transformer to the adjacent power transformers, a stop gap measure had to be undertaken. Hence, Applicant was constrained to use an available 83-MVA Power Transformer with No-Load Tap Changer (NLTC) to temporarily replace the defective transformer, pending the acquisition of a new power transformer with OLTC from abroad. The temporary replacement power transformer was energized on 10 July 2016.

16. However, there is a need to replace the power transformer with NLTC with a new power transformer with OLTC considering that the same is incapable of providing flexibility for tying and carrying the feeder loads served by the adjacent power transformers. Hence, voltage regulation problems may be experienced by customers and the load capacity of Power Transformer Bank No. 6 may not be fully maximized for the benefit of customers. The new power transformer

with OLTC will be subsequently installed given the limitations of the currently installed power transformer with NLTC. This will ensure the reliability and quality of electric service to customers in the affected areas.

17. Shown below are the projected loadings of the affected power transformers with and without the replacement of the defective Balintawak Power Transformer Bank No. 6.

Table 1: Without Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 5	78%
Loading of Grace Park 83-MVA Bank No. 1	72%
Loading of Kaybiga 83-MVA Bank No. 2	60%
System Loss	5,398,578 kWh

Table 2: With Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 6	46%
Loading of Balintawak 83-MVA Bank No. 5	53%
Loading of Grace Park 83-MVA Bank No. 1	59%
Loading of Kaybiga 83-MVA Bank No. 2	52%
System Loss	4,989,142 kWh

18. In view of the foregoing, there is a need to implement the emergency project for replacement of 83-MVA Power Transformer in Balintawak substation.

19. The cost for the temporary installation of power transformer with NLTC is **Php 1,045,219.20**. The same includes the installation of the available 83-MVA, 115 kV – 34.5 kV, three-phase power transformer with NLTC and costs for transformer oil and trucking services. While the cost for permanent installation of power transformer is **Php 55,796,508.15**. This includes the cost of new 83-MVA, 115 kV – 34.5 kV, three-phase power transformer with OLTC and costs for transformer oil, taxes, duties, brokerage, trucking services and installation.

20. Thus, the total cost for the emergency replacement of power transformer in Balintawak Substation is **Fifty Six Million Eight Hundred Forty One Thousand Seven Hundred Twenty Seven Pesos and Thirty Five Centavos (PhP 56,841,727.35)**.

21. In further support of the Application, attached hereto are the following documents:

- **Annex “A”** – Emergency CAPEX Project Information Summary with supporting documents: (i) Technical and Economic Analysis, (ii) Cost Estimates; (c) Expenditure Summary; (iii) Cost Benefit Analysis Calculation; and (iv) Gantt Chart;
- **Annex “B”** – Documents showing the results of tests conducted on Power Transformer Bank No. 6; and
- **Annex “C”** – Judicial Affidavit of Engr. Mario delos Reyes, Manager and Head of Applicant’s Substation Services Asset Management Office.

PRAYER

WHEREFORE, it is respectfully prayed to this Honorable Commission that the Applicant’s emergency replacement of power transformer at the Balintawak Substation be **APPROVED**.

Other relief just and equitable under the premises are likewise prayed for.

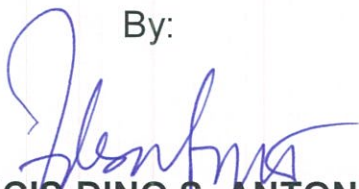
Pasig City, 26 August 2016.

MANILA ELECTRIC COMPANY

Applicant

Lopez Building,
Ortigas Avenue,
Barangay Ugong, Pasig City

By:



FRANCIS DINO S. ANTONIO

Counsel for Applicant

Roll of Attorneys No. 48145

PTR No. 1473407; 01/21/16; Pasig City

IBP No. 1023724; 01/08/16; RSM

MCLE Compliance No. V-0004608; 6 November 2014



HAZEL ROSE B. SEE

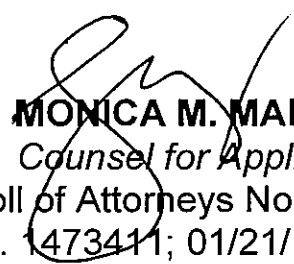
Counsel for Applicant

Roll of Attorneys No. 48265

PTR No. 1473408; 01/21/16; Pasig City

IBP LRN No. 06460; 1/16/07; QC

MCLE Compliance No. VI-0000253; 11 July 2016



MONICA M. MARTIN

Counsel for Applicant

Roll of Attorneys No. 55693

PTR No. 1473411; 01/21/16; Pasig City

IBP No. 1023726; 01/08/16; RSM

MCLE Compliance No. VI-0000239; 11 July 2016

7th Floor, Lopez Building

Ortigas Avenue, Barangay Ugong, Pasig City

Tel no. 1622-2260; Fax No: 1622-3550

Email: regulatory.legal.staff@meralco.com.ph

Republic of the Philippines)
City of Pasig)) S.S.

VERIFICATION
AND CERTIFICATION ON NON-FORUM SHOPPING

I, **JOSE RONALD V. VALLES**, Filipino, of legal age, married, with office address at 7th Floor, Lopez Building, MERALCO Compound, Ortigas Avenue, Pasig City, after being sworn in accordance with law, hereby depose and say that—

1. I am the Vice President and Head, Regulatory Affairs Office, of Applicant Manila Electric Company (MERALCO). In such capacity, I have caused the preparation and filing of the foregoing Application;

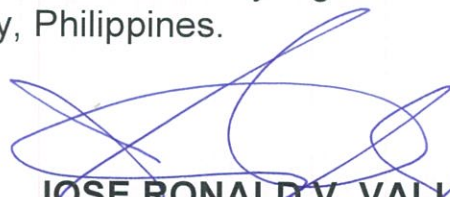
2. Moreover, I have been authorized by the Board of Directors of MERALCO to certify that Applicant has not heretofore filed any similar action, pleading or application involving the same issues before the Supreme Court, the Court of Appeals or any other lower courts or administrative bodies. A copy of the Secretary's Certificate authorizing me to cause the preparation of the instant Application and sign this Verification and Certification is attached hereto as ANNEX "D";

3. I have read and understood the allegations contained therein and the same are true and correct based on my personal knowledge and authentic records made available to me in the ordinary course of business of MERALCO;

4. To the best of my knowledge, no similar action or proceeding is pending before the Supreme Court, the Court of Appeals, the lower courts or administrative bodies;

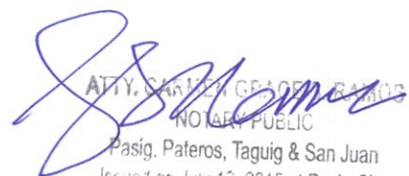
5. If I should hereafter learn that a similar action has been filed before the Supreme Court, the Court of Appeals, the lower courts or administrative bodies, I undertake to report such fact to this Honorable Commission within five (5) days from notice of such fact.

IN WITNESS WHEREOF, I have hereunto affixed my signature this
AUG 26 2016 day of August 2016 at Pasig City, Philippines.


JOSE RONALD V. VALLES
Affiant

SUBSCRIBED and SWORN to before me this AUG 26 2016 day of August 2016, affiant having exhibited to me his Social Security System ID bearing the number 33-10900088.

Doc. No. 250 ;
Page No. 51 ;
Book No. IV ;
Series of 2016.


ATTY. CARMEN GRACE B. RAMOS
NOTARY PUBLIC
Pasig, Pateros, Taguig & San Juan
Issued on July 13, 2015 at Pasig City
until December 31, 2016
Roll No. 55945; IBP No. 1023723; 01/08/16, RSM Chapter
PTR No. 1473409; 01/21/16; Pasig City
7th Floor, Lopez Bldg., Ortigas Ave., Pasig City

MANILA ELECTRIC COMPANY			
Emergency Project Information Summary			
Project Code	N/A	Priority Ranking	Emergency
Project Title	EMERGENCY REPLACEMENT OF POWER TRANSFORMER BANK NO. 6 AT BALINTAWAK SUBSTATION		
Project Type	Renewal		
Project Driver	Network: Asset Condition		
Project Cost (in millions)	Forex: USD 1.13 M	Local: PHP 3.31 M	Total: PHP 56.84 M
Regulatory Year	RY2017	Commissioning Date	July-Dec 2017
Project Description	<p>The emergency Capital Expenditure (CAPEX) project is for the replacement of the defective 83 MVA, 115 kV – 34.5 kV, three-phase Power Transformer, with On Load Tap Changer (OLTC) at Balintawak Substation with an 83 MVA, 115 kV – 34.5 kV, three-phase Power Transformer, with OLTC.</p> <p>The scope of project includes among other things:</p> <ul style="list-style-type: none">• Unspotting of Power Transformer• Hauling of Power Transformer and acc.• Spotting of Power Transformer• Pre-Assembly Test (Dew Point / Core to ground)• Power Transformer Assembly and Harness/Acc.• Vacuum Drying / Leak Test• Mobilization of Oil Machine• Mobilization of ISO Tank with oil• Oil Reconditioning• Oil Filling• Hot Oil Circulation• Stabilizing / Bleeding• Electrical / Calibration Testing• Chemical testing• Final Re-touch and Clearing• De-mobilization of Heavy equipment• Protection Works and Other Substation Works• Pre-Com Checklist and Final Inspection• Commissioning• Site Clearing and Material Return• Activities for final testing of faulted power transformer		
Project Justification	<p>Power Transformer Bank No. 6 of Balintawak Substation was tripped out by transformer differential relay through its lockout relay due to exploded secondary bushing (X3) on June 20, 2016. The power transformer was immediately subjected to initial test on 21 June 2016 after replacing H1, H2, H3 and X3 bushings, secondary lightning arresters and insulators from both the transformer and the 34.5 KV Switchgear which were damaged due to electric arc and shrapnel during explosion. The test results showed critical low insulation level between Primary Winding to Ground and between Secondary Winding to Ground. Optimistic that the said insulation value can still be improved, the power transformer was subjected to hot-oil circulation from June 22 to June 26, 2016.</p>		

MANILA ELECTRIC COMPANY

Emergency Project Information Summary



On 27 June 2016, final confirmatory electrical test was conducted. The results showed that the power transformer is no longer safe to be energized and was declared for replacement due to the following findings: (a) High % Insulation Power Factor (IPF) on H-G and X-G windings; (b) Increased in dielectric watts loss of H-G and X-G winding insulations; (c) Low insulation resistance on H-G and X-G windings; (d) Low insulation resistance between core and ground; and (e) Increased in primary excitation current in all phases as compared to the previous test results.

Considering the failure of Balintawak Transformer Bank No. 6, its load had to be transferred immediately to adjacent power transformers with 115kV-34.5kV rating namely, Balintawak 83 MVA Bank No. 5, Sta. Mesa 83 MVA Bank Nos. 5 and 7, Bagbaguin 83 MVA Bank No. 1, Diliman 83 MVA Bank No. 3, Kamuning 83-MVA Bank No. 2, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

When Banawe Substation was commissioned on 29 June 2016, some of the loads of Balintawak Transformer Bank No. 6 were permanently transferred to the said substation. However, the other portion of the loads of Balintawak Power Transformer Bank No.6 still remained being carried by the adjacent power transformers namely Balintawak 83 MVA Bank No. 5, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

As a consequence, the said adjacent power transformers were critically loaded as follows: (a) Balintawak Bank No. 5 at 78%; and (b) Grace Park 83-MVA Bank No. 1 at 72%.

Considering that the afore-mentioned power transformers were critically loaded, it is expected that an outage of any of these power transformers may result to prolonged and massive interruption in the affected areas of Manila and Quezon City. This will adversely affect the supply of electricity to the various major and vital customers in said areas such as Universal Steel Smelting Corp., Inc., Trinoma North Triangle Depot Commercial Corp., Light Rail Rectifier Substations, Maynilad, and Manila Central University Hospital.

As a stop gap measure to the possible adverse effects of the said load shifting to customers in the affected areas and distribution system, Applicant temporarily installed an available 83 MVA Power Transformer with No-Load Tap Changer (NLTC). The same was energized on 10 July 2016. However, the temporary replacement power transformer has no OLTC so it is incapable of providing flexibility for tying and carrying the feeder loads served by the adjacent power transformers. Hence, voltage regulation problems may be experienced by customers and the load capacity of Power Transformer Bank No.6 may not be fully maximized for the benefit of customers.

It is incumbent for Applicant to serve the load requirements in the affected areas without such dire impacts to the distribution system and customers. This can only be effected by installing a new 83 MVA Power Transformer with OLTC instead of continuously using the power transformer with NLTC.

Annex A	Technical and Economic Analysis
Annex B	Project Cost
Annex C	Real to Nominal Conversion Worksheet
Annex D	Cost Benefit Analysis Calculation

MANILA ELECTRIC COMPANY

Emergency Project Information Summary



Annex E

Gantt Chart

ANNEX A: TECHNICAL AND ECONOMIC ANALYSIS

1. BACKGROUND

1.1. Existing System

The Balintawak substation has seven (7) power transformer banks. One of the power transformer bank is 83-MVA Power Transformer Bank No. 6, a twenty-two (22) year old, 83 MVA, 115 kV – 34.5 kV, three-phase power transformer.

On 20 June 2016, Balintawak Power Transformer Bank No. 6 was tripped out by transformer differential relay through its lockout relay due to exploded secondary bushing (X3). Hence, the transformer was subjected to initial test after replacing H1, H2, H3 and X3 bushings, secondary lightning arresters and insulators from both the transformer and 34.5 KV Switchgear which were damaged due to electric arc and shrapnel during explosion. Final confirmatory electrical test was also conducted after subjecting the failed power transformer to hot-oil circulation process.

However, the loads of the power transformer had to be transferred to adjacent power transformers with 115-34.5 kV rating namely, Balintawak 83 MVA Bank No. 5, Sta. Mesa 83 MVA Bank Nos. 5 and 7, Bagbaguin 83 MVA Bank No. 1, Diliman 83 MVA Bank No. 3, Kamuning 83-MVA Bank No. 2, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

When Banawe Substation was commissioned on 29 June 2016, some of the loads of Balintawak Transformer Bank No. 6 were permanently transferred to the said substation. But the other portion of the loads of Balintawak Power Transformer Bank No.6 remained being carried by the adjacent power transformer namely Balintawak 83 MVA Bank No. 5, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2. As a consequence, Balintawak 83 MVA Bank No. 5 and Grace Park 83-MVA Bank No. 1 were operating above critical level. Hence, an outage of any of these power transformers may result to prolonged and massive interruption in the affected areas of Manila and Quezon City.

As a stop gap measure, Applicant temporarily installed and used an available 83 MVA Power Transformer with No-Load Tap Changer to temporarily replace the defective Balintawak Bank No. 6 with On-Load Tap Changer. The replacement Power Transformer was energized on 10 July 2016.

The limited capabilities of the temporary replacement power transformer posed serious constraints and deficiencies to the distribution system, and the same will affect the supply of electric service to customers.

1.2. Planning Criteria and Standards

In planning for the renewal and refurbishment projects of its distribution system, MERALCO adheres to the following policies and criteria:

1.2.1. Planning Policies

Substation Maintenance/Planning Policies

- For 34.5 KV primary rating & below – inspection at least once a month

- For 115 KV rating – inspection at least twice a month
- Thermographic Scanning and Ultrasonic Detection -at least every three months.
- Electrical Testing – every 2 years
- Oil Sampling/Testing – every year
- Dissolved Gas Analysis (DGA) – Every 3 months for 80MVA & below
- Dissolved Gas Analysis – Monthly for above 80MVA rating

1.2.2. Planning Criteria

CAPEX Projects (Maintenance) Planning Criteria

The replacement of power transformers is driven by the following criteria:

- Condition and age
 - Failure of winding ratio test.
 - Combination of optimized asset life and constant failure of electrical testing
- Technological obsolescence
 - Combination of optimized asset life and problem of parts due to obsolescence
- Compliance to regulatory and statutory requirements
 - Such as voltage variations requirements to meet customer needs
- Project NPV>0, FIRR>WACC, B/C>1.0
 - NPV – Net Present Value
 - FIRR – Finance Internal Rate of Return
 - WACC – Weighted Average Cost of Capital
 - B/C – Benefit to Cost Ratio

2. PERFORMANCE ASSESSMENT

The Balintawak 83-MVA Power Transformer Bank No. 6 was already in bad condition as shown by its initial and final test results after the tripping incident. The tripping of this power transformer necessitated the transfer of its loads to adjacent power transformers with 115-34.5 kV rating in order to serve the load requirements of Power Transformer Bank No. 6. As a consequence, some of the adjacent power transformers were loaded at critical levels. Thus, an outage of any of said transformers may cause power interruptions to the detriment of customers in affected areas.

The temporary installed power transformer has no OLTC so it cannot provide the required flexibility for tying and carrying the feeder loads served by the adjacent power transformers. Hence, voltage regulation problems may be experienced by customers and there could be difficulty in maximizing the load capacity of Power Transformer Bank No.6 for the benefit of customers.

2.1. Analysis

2.1.1. Qualitative Performance Measures

Parameter Under Consideration	Result without Project	Result with Project
Loading of existing Balintawak 83-MVA Bank No. 5, and Grace Park 83-MVA Bank No. (Condition: Balintawak Transformer Bank No. 6 is out)	Critical level	Within normal loading condition
System Loss	Higher system loss	Lower system loss

2.1.2. Quantitative Performance Measures

Table 1: Without Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 5	78%
Loading of Grace Park 83-MVA Bank No. 1	72%
Loading of Kaybiga 83-MVA Bank No. 2	60%
System Loss	5,398,578 kWh

Table 2: With Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 6	46%
Loading of Balintawak 83-MVA Bank No. 5	53%
Loading of Grace Park 83-MVA Bank No. 1	59%
Loading of Kaybiga 83-MVA Bank No. 2	52%
System Loss	4,989,142 kWh

2.2. Specific Planning Criteria breached

In this project, the transformer failed the Excitation Current Measurement, Insulation Power Factor, Insulation Resistance, and Core-to-Ground Insulation tests and was recommended for immediate replacement.

3. PROJECT FORMULATION AND EVALUATION

3.1 Project Alternative

In the process of determining the most cost-effective solution to address the identified deficiencies, MERALCO generated several technically-feasible alternatives that could satisfy the requirements in a timely and efficient manner.

The problem and project alternatives are summarized below:

Problem Description	Defective Power Transformer	
Project Alternatives		Classification
Alternative 1	Replace the defective transformer with OLTC with a new transformer with OLTC.	Stand-alone
Alternative 2	Transfer the load to adjacent transformers without replacing the defective transformer	Stand-alone

3.1.1 Alternative 1

Alternative 1 is replacement of the defective Power Transformer Bank No. 6 with OLTC with a new 83 MVA power transformer with OLTC. With the implementation of this alternative, the load requirements of Power Transformer Bank 6 will be served without any dire impacts to the distribution system and customers.

3.1.2 Alternative 2

Alternative 2 pertains to the transfer of the loads to adjacent transformers i.e., Balintawak Transformer Bank No.5, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2 without replacing the defective Balintawak Bank No. 6.

The repair of Power Transformer Bank No.6 was also considered but the final test already revealed that the power transformer is no longer safe to be energized and was declared for replacement.

3.2 Technical Analysis

The following table summarizes the comparison of the advantages and disadvantages of the alternatives:

Alternative	Advantages	Disadvantages
<p>Alternative 1</p> <p>Replace the existing transformer with OLTC with a new transformer with OLTC.</p>	<ul style="list-style-type: none">• There is no need to transfer loads of New Power Transformer Bank No. 6 to other adjacent power transformers in order to serve the load requirements of power transformer Bank No.6. Consequently, the adjacent power transformers will not be critically loaded.• This will restore normal distribution line flexibility and ultimately ensure the reliability of the distribution system in the area.• The load capacity of the said power transformer can already be maximized for the benefit of customers.• With the installation of said new power transformer in Balintawak Substation, customers will not experience voltage regulation problems;• The quality and reliability of electric service to customers in said area will not be affected;• The emergency project will prevent voltage regulation problems to customers; and• Lower system loss in the affected area.	<ul style="list-style-type: none">• There is no significant disadvantage.
<p>Alternative 2</p> <p>Transfer the load to adjacent transformers without replacing the defective Balintawak Transformer Bank No.6</p>	<ul style="list-style-type: none">• There is no advantage.	<ul style="list-style-type: none">• Critical loading of Balintawak 83 MVA Bank No. 5 and Grace Park 83-MVA Bank No. 1;• The loading level of the adjacent power transformer banks could adversely affect the quality of electric service

Alternative	Advantages	Disadvantages
		<p>to the major customers in the area since an outage of any of the critically loaded power transformers may lead to a power interruption thereat;</p> <ul style="list-style-type: none"> • This will increase the system loss in the affected area; and • There will be poor distribution line flexibility and this may affect the reliability of the distribution system in the area.

3.2 Financial Analysis

The financial evaluations of the alternative projects are summarized in the following table:

Project Alternative	Project Description	Net Present Value (NPV) (in thousands)	(FIRR)	B/C
Alternative 1	Replace the defective transformer with OLTC with a transformer with OLTC	2,504.25	16%	1.94
Alternative 2	Transfer the load to adjacent transformers without replacing the defective transformer.	822.16	6%	0.39

4. RECOMMENDATION

Replacement of the failed 83-MVA Power Transformer with On Load Tap Changer at Balintawak Substation with a new 83-MVA Power Transformer with On-load Tap Changer will resolve all system constraints and deficiencies.

Although the temporary installation of power transformer had resolved the critical loading of adjacent power transformer banks, there would still be system constraints and deficiencies due to lack of OLTC of said power transformer. In particular, customers may experience voltage regulation problems and Applicant will not be able to maximize load capacity of said power transformer for benefit of customers.

Thus, it is recommended that a new Power Transformer Bank No.6 , be installed in said substation so as to enable Applicant to fully address all problems/concerns and to continuously provide quality and reliable electric service to customers in the affected areas.

Scope of work

- Replacement of 83MVA power transformer with OLTC.
 - Unspotting of Power Transformer
 - Hauling of Power Transformer and acc.
 - Spotting of Power Transformer
 - Spotting of RCC
 - Pre-Assembly Test (Dew Point / Core to ground)
 - Mobilization of Heavy Eqpt
 - Uncrating of Accessories (at temporary storage)
 - Hauling of Accessories to Site
 - Power Transformer Assembly and Harness/Acc.
 - Vacuum Drying / Leak Test
 - Mobilization of Oil Machine
 - Mobilization of ISO Tank with oil
 - Oil Reconditioning
 - Oil Filling
 - Hot Oil Circulation
 - Stabilizing / Bleeding
 - Electrical / Calibration Testing
 - Chemical testing
 - Final Re-touch and Clearing
 - De-mobilization of Heavy equipment
 - Protection Works and Other Substation Works
 - Pre-Com Checklist and Final Inspection
 - Commissioning
 - Site Clearing and Material Return
 - Activities for final testing of faulted power transformer

4.1. Impact

This will resolve the above-mentioned constraints and deficiencies of the distribution system in Quezon City and nearby areas.

ANNEX B: PROJECT COST

The project cost includes labor and material costs. The material costs are based on the moving average price of the equipment that will be used in relation to this project. The cost includes required foundation, transformer oil, taxes, duties, brokerage, trucking services and installation.

Table 1: Temporary Installation of Power Transformer

	Labor Cost	Material Cost	Other Cost	Sub-Total
Power transformer	387,045.60	162,637.89	495,535.71	1,045,219.20
Total (PhP)	387,045.60	162,637.89	495,535.71	1,045,219.20

Table 2: Permanent Installation of Power Transformer

Asset category	Labor Cost	Material Cost	Other Cost	Sub-Total
Power transformer	2,118,037.20	53,531,998.82	146,472.13	55,796,508.15
Total (PhP)	2,118,037.20	53,531,998.82	146,472.13	55,796,508.15

Table 3: Summary of Cost Estimates

Description	Quantity	Major Equipment	Total
Balintawak Power Transformer	1	83 MVA, 115kVY-34.5kVY-13.8kVD three-phase power transformer with On –Load Tap Changer (OLTC)	56,841,727.35
Total (PhPReal 2016)			56,841,727.35

Table 4. Cost Component Breakdown

Cost Component	RY 2017
pLocal	3,309,728.53
FOREX (US \$)	1,134,152.52
Total (PhP, Real 2016)	56,841,727.35

ANNEX C: EXPENDITURE SUMMARY

MANILA ELECTRIC COMPANY					
Capital Expenditure - Major Projects					
US\$ Expenditure (including all international expenditure)					
PROJECT NAME: Replacement of Power Transformer No. 6 (83 MVA, 115kV-34.5kV) at Balintawak Substation (PXF with OLTC)		CAPITAL EXPENDITURE - MAJOR PROJECTS (US\$ COMPONENT)			
		Forecast (US\$, real) (Regulatory Year)			
Category		2016	2017	2018	2019
Regulated Distribution Services Assets					
Network	Land and Land Rights (Distribution Purposes)				
	Structures and Improvements (Distribution Purposes)				
	Station Equipment				
	Power transformers		1,134,153		
	Switchgear				
	Protective equipment				
	Metering & control equipment				
	Communications equipment				
	Other station equipment				
	Poles, Towers and Fixtures - Distribution				
	Overhead Conductors and Devices - Distribution				
	Underground Conduits - Distribution				
	Underground Conductors and Devices - Distribution				
	Distribution Transformers				
	Power Conditioning Equipment				
	Meters, Metering Instruments & Metering Transformers - Distribution				
	Information technology equipment (distribution)				
	Regulated Entity Property on Consumer's Premises				
	Street Lights and Signal Systems				
	Submarine Cables				
Non-network	Land and Land Rights (non-network)				
	Structures and Improvements (non-network)				
	Office Furniture and Equipment				
	Transportation Equipment				
	Stores Equipment				
	Tools, Shop and Garage Equipment				
	Laboratory Equipment				
	Information Systems Equipment (non-network)				
	Power-operated Equipment				
	Communication Plant and Equipment				
	Miscellaneous Equipment				
	Materials and supplies (including spares)				
	Subtrans	Transferred subtransmission assets			
Sub-total Regulated Distribution Services		0	1,134,153	0	0
Distribution Connection Services Assets					
Network	Poles, Towers and Fixtures (Customer)				
	Overhead Conductors and Devices (Customer)				
	Underground Conduits (Customer)				
	Underground Conductors and Devices (Customer)				
	Line Transformers (Customer)				
Non-network	Information Systems Equipment (Connection)				
	Land and Land Rights (non-network)				
	Structures and Improvements (non-network)				
	Office Furniture and Equipment				
	Transportation Equipment				
	Stores Equipment				
	Tools, Shop and Garage Equipment				
	Laboratory Equipment				
	Information Systems Equipment (non-network)				
	Power-operated Equipment				
	Communication Plant and Equipment				
	Miscellaneous Equipment				
	Materials	Materials and supplies (including spares)			
Sub-total Distribution Connection Assets		0	0	0	0
Regulated Retail Services Assets					
	Meters, Instruments & Metering Transformers (Consumer Consumption Metering)				
	Land and land rights				
	Structures and improvements				
	Office Furniture and Equipment				
	Transportation Equipment				
	Stores Equipment				
	Tools, Shop and Garage Equipment				
	Laboratory Equipment				
	Information Systems Equipment				
	Communication Plant and Equipment				
	Miscellaneous Equipment				
Sub-total Regulated Retail Services Assets		0	0	0	0
TOTAL CAPEX		0	1,134,153	0	0

Notes : References to Regulatory Years are for the 12-month period ending on Jun 30 of the year noted.

ANNEX C: EXPENDITURE SUMMARY

MANILA ELECTRIC COMPANY					
Capital Expenditure - Major Projects					
Local Expenditure					
PROJECT NAME:		CAPITAL EXPENDITURE - MAJOR PROJECTS (LOCAL COMPONENT)			
Replacement of Power Transformer No. 6 (83 MVA, 115kV-34.5kV) at Balintawak Substation (PXF with OLTC)		Forecast (PhP, real) (Regulatory Year)			
Category		2016	2017	2018	2019
Regulated Distribution Services Assets					
Network	Land and Land Rights (Distribution Purposes)				
	Structures and Improvements (Distribution Purposes)				
	Station Equipment				
	Power transformers		3,309,729		
	Switchgear				
	Protective equipment				
	Metering & control equipment				
	Communications equipment				
	Other station equipment				
	Poles, Towers and Fixtures - Distribution				
	Overhead Conductors and Devices - Distribution				
	Underground Conduits - Distribution				
	Underground Conductors and Devices - Distribution				
	Distribution Transformers				
	Power Conditioning Equipment				
	Meters, Metering Instruments & Metering Transformers - Distribution				
	Information technology equipment (distribution)				
	Regulated Entity Property on Consumer's Premises				
	Street Lights and Signal Systems				
	Submarine Cables				
Non-network	Land and Land Rights (non-network)				
	Structures and Improvements (non-network)				
	Office Furniture and Equipment				
	Transportation Equipment				
	Stores Equipment				
	Tools, Shop and Garage Equipment				
	Laboratory Equipment				
	Information Systems Equipment (non-network)				
	Power-operated Equipment				
	Communication Plant and Equipment				
	Miscellaneous Equipment				
	Materials and supplies (including spares)				
	Transferred subtransmission assets				
Materials					
Subtrans					
Sub-total Regulated Distribution Services		0	3,309,729	0	0
Distribution Connection Services Assets					
Network	Poles, Towers and Fixtures (Customer)				
	Overhead Conductors and Devices (Customer)				
	Underground Conduits (Customer)				
	Underground Conductors and Devices (Customer)				
	Line Transformers (Customer)				
Non-network	Information Systems Equipment (Connection)				
	Land and Land Rights (non-network)				
	Structures and Improvements (non-network)				
	Office Furniture and Equipment				
	Transportation Equipment				
	Stores Equipment				
	Tools, Shop and Garage Equipment				
	Laboratory Equipment				
	Information Systems Equipment (non-network)				
	Power-operated Equipment				
	Communication Plant and Equipment				
	Miscellaneous Equipment				
Materials	Materials and supplies (including spares)				
Sub-total Distribution Connection Assets		0	0	0	0
Regulated Retail Services Assets					
	Meters, Instruments & Metering Transformers (Consumer Consumption Metering)				
	Land and land rights				
	Structures and improvements				
	Office Furniture and Equipment				
	Transportation Equipment				
	Stores Equipment				
	Tools, Shop and Garage Equipment				
	Laboratory Equipment				
	Information Systems Equipment				
	Communication Plant and Equipment				
	Miscellaneous Equipment				
Sub-total Regulated Retail Services Assets		0	0	0	0
TOTAL CAPEX		0	3,309,729	0	0

Notes : References to Regulatory Years are for the 12-month period ending on June 30 of the year noted.

ANNEX C: EXPENDITURE SUMMARY

MANILA ELECTRIC COMPANY						
Capital Expenditure - Major Projects						
Total Expenditure, local and foreign (PhP, real)						
PROJECT NAME:		CAPITAL EXPENDITURE - MAJOR PROJECTS (TOTAL, REAL)				
Replacement of Power Transformer No. 6 (83 MVA, 115kV-34.5kV) at Balintawak Substation (PXF with OLTC)						
		Forecast (PhP, real) (Regulatory Year)				
Category		2016	2017	2018	2019	
Regulated Distribution Services Assets						
Network	Land and Land Rights (Distribution Purposes)	0	0	0	0	
	Structures and Improvements (Distribution Purposes)	0	0	0	0	
	Station Equipment					
	Power transformers	0	56,841,727	0	0	
	Switchgear	0	0	0	0	
	Protective equipment	0	0	0	0	
	Metering & control equipment	0	0	0	0	
	Communications equipment	0	0	0	0	
	Other station equipment	0	0	0	0	
	Poles, Towers and Fixtures - Distribution	0	0	0	0	
	Overhead Conductors and Devices - Distribution	0	0	0	0	
	Underground Conduits - Distribution	0	0	0	0	
	Underground Conductors and Devices - Distribution	0	0	0	0	
	Distribution Transformers	0	0	0	0	
	Power Conditioning Equipment	0	0	0	0	
	Meters, Metering Instruments & Metering Transformers - Distribution	0	0	0	0	
	Information technology equipment (distribution)	0	0	0	0	
	Regulated Entity Property on Consumer's Premises	0	0	0	0	
	Street Lights and Signal Systems	0	0	0	0	
	Submarine Cables	0	0	0	0	
Non-network	Land and Land Rights (non-network)	0	0	0	0	
	Structures and Improvements (non-network)	0	0	0	0	
	Office Furniture and Equipment	0	0	0	0	
	Transportation Equipment	0	0	0	0	
	Stores Equipment	0	0	0	0	
	Tools, Shop and Garage Equipment	0	0	0	0	
	Laboratory Equipment	0	0	0	0	
	Information Systems Equipment (non-network)	0	0	0	0	
	Power-operated Equipment	0	0	0	0	
	Communication Plant and Equipment	0	0	0	0	
	Miscellaneous Equipment	0	0	0	0	
	Materials	Materials and supplies (including spares)	0	0	0	0
	Subtrans	Transferred subtransmission assets	0	0	0	0
	Sub-total Regulated Distribution Services		0	56,841,727	0	0
Distribution Connection Services Assets						
Network	Poles, Towers and Fixtures (Customer)	0	0	0	0	
	Overhead Conductors and Devices (Customer)	0	0	0	0	
	Underground Conduits (Customer)	0	0	0	0	
	Underground Conductors and Devices (Customer)	0	0	0	0	
	Line Transformers (Customer)	0	0	0	0	
	Information Systems Equipment (Connection)	0	0	0	0	
Non-network	Land and Land Rights (non-network)	0	0	0	0	
	Structures and Improvements (non-network)	0	0	0	0	
	Office Furniture and Equipment	0	0	0	0	
	Transportation Equipment	0	0	0	0	
	Stores Equipment	0	0	0	0	
	Tools, Shop and Garage Equipment	0	0	0	0	
	Laboratory Equipment	0	0	0	0	
	Information Systems Equipment (non-network)	0	0	0	0	
	Power-operated Equipment	0	0	0	0	
	Communication Plant and Equipment	0	0	0	0	
	Miscellaneous Equipment	0	0	0	0	
	Materials	Materials and supplies (including spares)	0	0	0	0
Sub-total Distribution Connection Assets		0	0	0	0	
Regulated Retail Services Assets						
	Meters, Instruments & Metering Transformers (Consumer Consumption Metering)	0	0	0	0	
	Land and land rights	0	0	0	0	
	Structures and improvements	0	0	0	0	
	Office Furniture and Equipment	0	0	0	0	
	Transportation Equipment	0	0	0	0	
	Stores Equipment	0	0	0	0	
	Tools, Shop and Garage Equipment	0	0	0	0	
	Laboratory Equipment	0	0	0	0	
	Information Systems Equipment	0	0	0	0	
	Communication Plant and Equipment	0	0	0	0	
	Miscellaneous Equipment	0	0	0	0	
Sub-total Regulated Retail Services Assets		0	0	0	0	
TOTAL CAPEX		0	56,841,727	0	0	

Notes : References to Regulatory Years are for the 12-month period ending on June 30 of the year noted.

Manila Electric Company
COST-BENEFIT ANALYSIS TEMPLATE



Project Name : Replacement of Balitawak Bank 6
Brief Description : Purchase a new 83MVA Power Transformer and replace the defective Balitawak Bank 6

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	

(Peso amounts in thousands)

CASH INFLOWS																
Operational Savings	4,145	4,110	4,052	3,995	3,940	3,887	3,836	3,786	3,738	3,692	3,646	3,602	3,560	3,519	3,479	3,440
Avoided cost	14,253	14,395	14,539	25	25	26	26	26	26	27	27	27	27	28	28	28
Additional Revenue	2,966	24	25	25	25	26	26	26	26	27	27	27	27	28	28	28
Intangible benefits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	0	21,364	18,529	18,616	4,020	3,966	3,913	3,862	3,813	3,765	3,718	3,673	3,630	3,587	3,547	3,507	3,469
CASH OUTFLOWS																	
Investment	56,642	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance cost	-	21	44	21	44	21	45	22	46	22	47	23	48	23	49	3,612	24
Dislocation cost	-	471	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Intangible cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Tax Effect	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NET CASH FLOWS	(66,842)	20,873	18,485	18,595	3,976	3,944	3,868	3,840	3,766	3,742	3,671	3,650	3,581	3,564	3,497	(105)	3,445
----------------	----------	--------	--------	--------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

WACC

35 years

14.97%

IRR	16%
NPV	2,504.25
B / C	1.94

2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32	Year 33	Year 34	Year 35
3,403	3,397	3,331	3,297	3,264	3,232	3,201	3,171	3,142	3,114	3,087	3,060	3,034	3,010	2,985	2,962	2,939	2,918	2,896
29	29	29	29	30	30	30	31	31	31	32	32	32	32	33	33	33	34	34
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,431	3,395	3,360	3,327	3,294	3,262	3,232	3,202	3,173	3,145	3,118	3,092	3,067	3,042	3,018	2,995	2,973	2,951	2,930
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	24	52	3,756	53	25	3,859	54	26	3,985	56	27	4,105	58	28	4,228	59	29	4,355
3,381	3,371	3,309	(430)	3,241	3,237	(637)	3,148	3,147	(840)	3,062	3,065	(1,038)	2,985	2,991	(1,232)	2,914	2,923	(1,424)

Manila Electric Company
COST-BENEFIT ANALYSIS TEMPLATE

Project Name : Replacement of Balitawak Bank 6
Brief Description : Temporarily transfer all loads served by Balitawak Transformer Bank No. 6 to adjacent transformers before RPS



(P=00 amount in thousands)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32	Year 33	Year 34	Year 35

CASH OUTFLOWS																																
Investment		56,405																														
Maintenance cost																																
Dilocation cost	471	21	45	22	46	22	47	23	48	23	49	3,612	24	51	24	52	3,395	53	25	3,869	54	26	3,965	55	27	4,105	56	28	4,238	59	29	4,355
Variable cost																																
Net Tax Effect																																

CASH FLOWS

																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

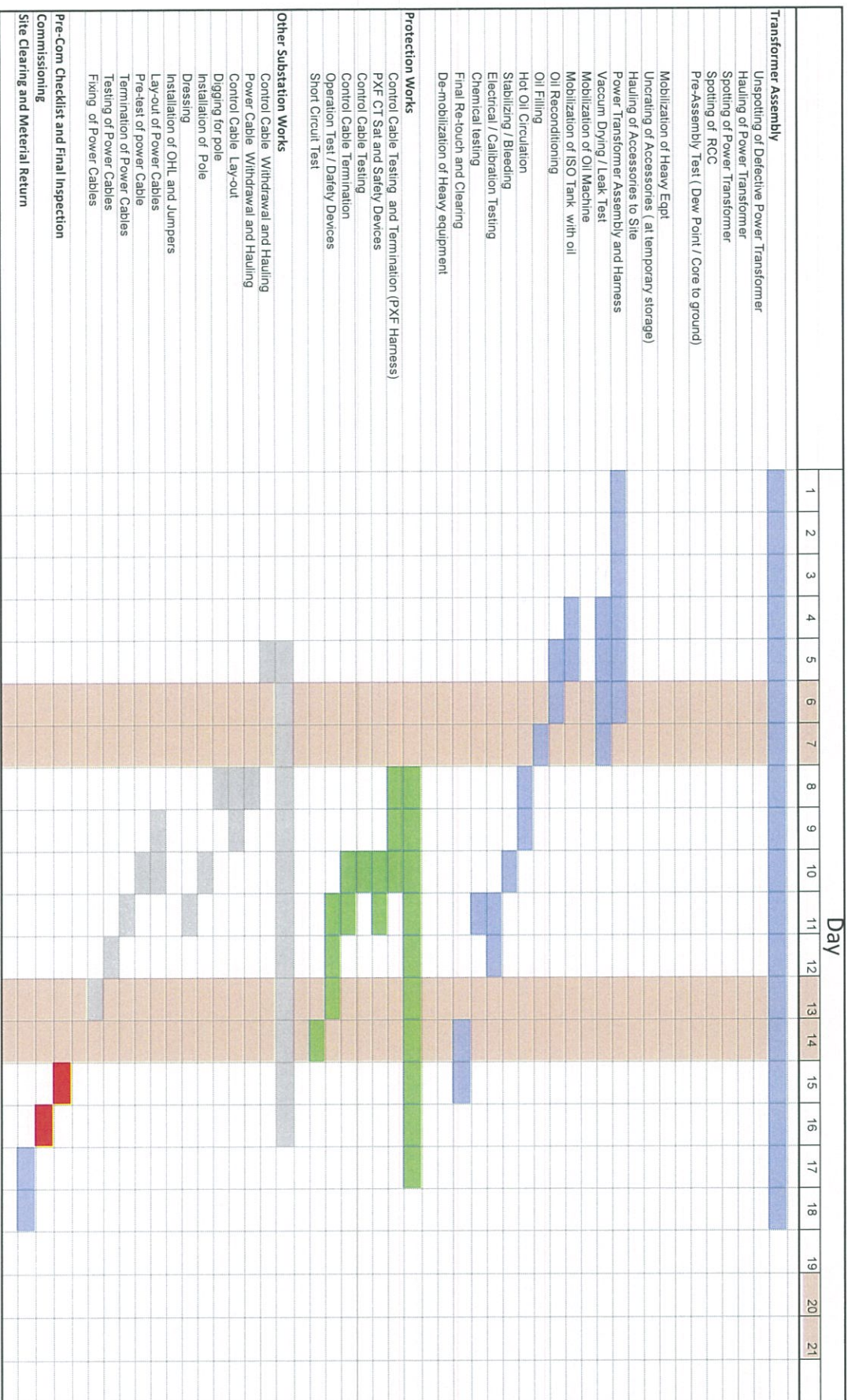
NET CASH FLOWS

	0	5,594	3,215	3,246	65,510	3,827	3,785	3,750	3,688	3,675	3,613	3,601	3,539	3,528	3,487	1,931	3,422	3,381	3,353	3,292	1,469	3,224	3,219	6877	3,125	3,122	6899	3,029	3,027	11,081	2,936	2,936	11,261	2,845	2,848	11,568
--	---	-------	-------	-------	--------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	------	-------	-------	------	-------	-------	--------	-------	-------	--------	-------	-------	--------

IRR	6%
NPV	822.16
B / C	0.39

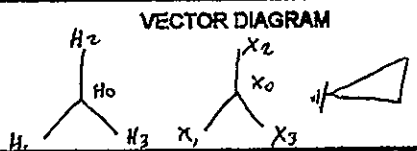
ANNEX E: GANTT CHART

Name of Project:	Replacement of Power Transformer No. 6 (83 MVA, 115kV-34.5kV) at Balintawak Substation (PXF with OLTC)
Target Completion:	July-December 2017



	SUBSTATION PREVENTIVE MAINTENANCE PROCEDURE POWER TRANSFORMER TEST REPORT	PM-DSSB-251.02 Rev. Code: 01	Page 1 of 1
		Effectivity Date: February 25, 2011	

Location: <u>Balintawak S/S</u>	PXF Unit No.: <u>6</u>	Date Tested: <u>June 21, 2016</u>
Make: <u>Pauwels</u>	Serial No.: <u>9349978</u> Class: <u>0A/FA1/FA2</u>	Type: <u>09V 50/230</u>
KVA (11) <u>83.370</u>	Voltage Rating: <u>110Y-34.5Y-138</u> Oil Temp.: <u>35</u>	Wdg. Temp.: <u>35</u>
Tested by: <u>MT, MA, MH (3217)</u>	Weather: <u>Drizzle</u> Ambient Temp.: <u>30</u>	% Rel. Humidity: <u>95</u>
Witnessed by: <u>Lr Castillo</u>	() PMT (X) Serviced () Reconditioned () New () Faulted () Others	

INSULATION POWER FACTOR TEST (0.51)						INSULATION RESISTANCE (meg-ohms)					TESTS ON THE INSULATING OIL						
Winding	Cap.	mA	watts	% IPF		P.I.	Aft. 1 min.		Aft. 10 min.		DBV	IFT	NN	COLOR	% IPF @ 20 °C	WATER CONTENT	
				@ 35 °C	@ 20 °C		500 V	2500 V	500 V	2500 V							
H-G		19	10	5.263	2.689			19.04		3.37	1.77						
X-G		10.8	9.2	8.519	4.344			176.4		155.2	0.88						
Y-G		68	2.8	0.412	0.210			1123		1460	1.30						
H-X		32	0.6	0.188	0.096			96.1		95.1	0.99						
X-Y		54	0.8	0.148	0.075			2,023		2,590	1.28						
Y-H		0.25	0.016	0.040	0.011			2,228		2,986	1.34						
EXCITING CURRENT MEASUREMENT (mA)						TTR TEST: As Fnd Tap: <u>96</u>						TESTS ON THE INSULATING OIL					
Wdg.	2.5KV	5.0KV	7.5KV	10kv		Winding	As Fnd.	Comp.	% Ratio		LOADING						
H ₁ H ₂	210	150	120	100		H ₁ H ₂ -X ₀ X ₁	3.1768	3.1884	99.64		Year						
H ₂ H ₃	100	84	75	76		H ₁ H ₂ -X ₀ X ₂	3.1909		100.08		Max. Load						
H ₀ H ₃	144	120	104	92		H ₁ H ₂ -X ₀ X ₃	3.1839		99.84		Max. Temp.						
LIGHTNING ARRESTERS				WINDING RESISTANCE		FULL VOLTAGE EXCITATION				VISUAL INSPECTION							
Phase	mA	watts	Wdg.	at 35 °C	at 75 °C	Winding	Core Loss (Watts)			Oil Level <u>OK</u>							
PRIM.A			H ₁ H ₂	185.4	m-Ω					Oil Leaks <u>Repaired by S/S Support</u>							
PRIM.B			H ₂ H ₃	185.1	m-Ω					Dehydrator <u>OK</u>							
PRIM.C			H ₁ H ₃	188.5	m-Ω					Cooling Fans <u>OK</u>							
SEC.A	0.60	0.22	X ₀ X ₁	13.97	m-Ω	Winding	I ex (amperes)			N ₂ Pressure <u>-</u>							
SEC.B	0.60	0.24	X ₀ X ₂	13.80	m-Ω												
SEC.C	0.60	0.22	X ₀ X ₃	13.88	m-Ω												
TERT.A				71.74	m-Ω												
TERT.B						CORE-TO-GRD. INS. RES. (meg-ohms)				OIL-CONSERVATION METHOD () Gas-Blanketed / Sealed () Conservator () Other							
TERT.C						at 500V at 2500V											
NO.	Oil Level		BUSHINGS				Hot Coiler		BUSHING DATA			GENERAL CONDITIONS					
	HI	LO	mA	watts	% IPF @ 35 °C	% IPF @ 20 °C	mA	watts	Make	Serial Number	Factory % IPF						
H1																	
H2																	
H3																	
H0																	
X1																	
X2																	
X3																	
X0																	
Y1																	
Y2																	
Y3																	

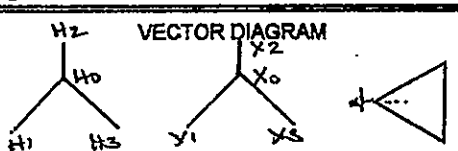
Instruments Used: ME-579, TTL-34, TO-9

REMARKS: Tested after replacement of H₁H₂H₃ & X₃ bushings, oil, sec LA's, insulators near sec winding. For further servicing due high % IPF and low insulation at primary and secondary windings.

Received by: _____ Checked by: _____ Approved by: _____

	SUBSTATION PREVENTIVE MAINTENANCE PROCEDURE POWER TRANSFORMER TEST REPORT	PM-DSSB-251.02 Rev. Code: 01	Page 1 of 1
		Effectivity Date: February 25, 2011	

Location: BAKINTAWAK PXF Unit No.: 6 Date Tested: 6-27-16
 Make: PAOWELS Serial No.: 93.4.4278 Class: DA/FAL/FA2 Type: DRV 50/250
 KVA (/ /) 83,330 Voltage Rating: 110Y-34.5Y-8.8Y Oil Temp.: 48 Wdg. Temp.: 48
 Tested by: MG MM'EG Weather: Sunny Ambient Temp.: 36°C % Rel. Humidity: 60%
 Witnessed by: _____ () PMT (x) Serviced () Reconditioned () New (x) Faulted () Others _____

INSULATION POWER FACTOR TEST (D-54)						INSULATION RESISTANCE (meg-ohms)					TESTS ON THE INSULATING OIL						
Winding	Cap.	mA	watts	% IPF	% IPF	Aft. 1 min.		Aft. 10 min.		P.I.	DBV	IFT	NN	COLOR	% IPF	WATER	
				@ 40°C	@ 20°C	500 V	2500 V	500 V	2500 V						@ 20 °C		CONTENT
H-G		19.2	7.5	3.906	2.109		32.78		38.3	1.19							
X-G		11.2	9.9	8.839	4.773		49.21		49.7	1.01							
Y-G		69.0	2.8	0.406	0.219		2.241		7.150	9.19							
H-X		34.0	0.6	0.194	0.105		10.277		108.8	1.01							
X-Y		54.0	1.0	0.185	0.010		1.738		6.170	3.55							
Y-H		0.24	0.014	0.583	0.272		4.259		10.960	2.7							
EXCITING CURRENT MEASUREMENT (mA)						TTR TEST: As Fnd Tap: 96%											
Wdg.	2.5KV	5.0KV	7.5KV	10kv		Winding	As Fnd.	Comp.	% Ratio		LOADING						
H ₂ H ₁	210	150	120	100		H ₀ H ₁ -X ₀ X ₁	3.183	3.1884	99.97		Year						
H ₂ H ₂	100	84	75	70		H ₀ H ₂ -X ₀ X ₂	3.184	3.1884	100.50		Max. Load						
H ₂ H ₃	144	120	104	92		H ₀ H ₃ -X ₀ X ₃	3.183	3.1884	99.97		Max. Temp.						
LIGHTNING ARRESTERS				WINDING RESISTANCE		FULL VOLTAGE EXCITATION					VISUAL INSPECTION						
Phase	mA	watts	Wdg.	at	at 75°C	Winding	Core Loss (Watts)				Oil Level ok						
PRIM. A											Oil Leaks none						
PRIM. B											Dehydrator orange = ok						
PRIM. C											Cooling Fans ok						
SEC. A						Winding	I _{ex} (amperes)				N ₂ Pressure -						
SEC. B																	
SEC. C																	
TERT. A																	
TERT. B																	
TERT. C						CORE-TO-GRD. INS. RES. (meg-ohms)											
						at 500V	1080		at 2500V	102							
NO.	OIL		BUSHINGS				Hot Collar		BUSHING DATA			OIL-CONSERVATION METHOD					
	Level		mA	watts	% IPF	% IPF			Make	Serial Number	Factory % IPF	() Gas-Blanketed / Sealed () Conservator () Other					
	HI	LO			@ 20°C	@ 20°C	mA	watts									
H1												GENERAL CONDITIONS o a o r o t o i d i r t					
H2																	
H3																	
H0																	
X1												Insulating Oil Winding Tap-Charger Winding Insulation Bushings Lightning Arresters Cooling Fans					
X2																	
X3																	
X0																	
Y1																	
Y2																	
Y3																	

Instruments Used:

REMARKS: Tested after Hot Oil Circulation. Results of test is as follows: (1) HIGH % IPF @ H-G and X-G, (2) HIGH WATTS LOSS @ H-G and X-G, (3) LOW INSULATION RESISTANCE @ H-G and X-G, (4) LOW INSULATION RESISTANCE @ Core to Ground (102 meg @ 1KV), (5) INCREASE IN EXCITATION CURRENT IN ALL WINDINGS. TESTED NOT OK - Recommended for REPLACEMENT.

Received by: J. G. DASSO Checked by: _____ Approved by: _____

Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City

IN THE MATTER OF THE
APPLICATION FOR APPROVAL
OF THE EMERGENCY
REPLACEMENT OF POWER
TRANSFORMER AT
BALINTAWAK SUBSTATION,

ERC CASE NO. _____

MANILA ELECTRIC COMPANY
(MERALCO),

Applicant.

X-----X

**JUDICIAL AFFIDAVIT
OF ENGR. MARIO DELOS REYES**

The following examination of witness, **ENGR. MARIO ANGELITO A. DELOS REYES**, of legal age, with office address at 4th floor, Technical Services Building, Ortigas Avenue, Barangay Ugong, Pasig City, Philippines, who is an employee of the Manila Electric Company ("MERALCO") with rank of Head of Substation Services Asset Management (STSAM) Office of MERALCO, was conducted by Atty. Carmen Grace S. Ramos, at the 7th Floor, Lopez Building, Ortigas Avenue, Barangay Ugong, Pasig City, on 26 August 2016.

The testimony of ENGR. MARIO ANGELITO A. DELOS REYES is being offered for following purposes:

1. To prove the justification and necessity for the Emergency Installation of One (1) 83 MVA Power Transformer at Balintawak Substation and the consumers benefits that would result in the Approval of the Application;
2. To show the details of the emergency project;
3. To show the results of the tests conducted on Balintawak Power Transformer Bank No. 6;

4. The show and prove the cost of the emergency project;
5. To show and prove the impact to Applicant's distribution system and customers if the emergency project was not implemented;
6. To identify the documents in relation to this case; and
7. Other matters relevant to the instant Application.

X-----X

I, **ENGR. MARIO ANGELITO A. DELOS REYES**, Filipino, of legal age, married, with office address at 4th floor, Technical Services Building, Ortigas Avenue, Barangay Ugong, Pasig City, Philippines after having been sworn to in accordance with law, fully conscious that I am answering the questions under oath and with knowledge that I may face criminal liability for false testimony and perjury, hereby depose and state:

Q1: What are your professional and educational qualifications?

A1: I am a licensed Professional Electrical Engineer. I passed the PEE Board Examination in February 4, 1991. I hold a Bachelor of Science degree in Electrical Engineering from the Mapua Institute of Technology.

Q2: Where are you presently employed?

A2: I am currently the Head of Substation Services Asset Management (STSAM) Office of MERALCO, effective May 1, 2016. Prior to this, I was, among other things, the Team Leader of Substation South Operation and the Maintenance and Team Leader of Substation North Operation and Maintenance.

Q3: How long have you been employed by MERALCO?

A3: I have been employed by MERALCO for the past twenty six (26) years.

Q4: What are your duties and responsibilities as Manager and Head of STSAM Office?

A4: My major duties and responsibilities as STSAM Head include Sub-Transmission Process Management, Maintenance Planning and Performance Management and Development of Substation

Standards. As a Substation Team Leader, my responsibilities include the construction, commissioning, operation and maintenance of all MERALCO substations.

Q5: Are you familiar with the Application of MERALCO, entitled: **"IN THE MATTER OF THE APPLICATION FOR APPROVAL OF THE EMERGENCY REPLACEMENT OF POWER TRANSFORMER AT BALINTAWAK SUBSTATION, MANILA ELECTRIC COMPANY, APPLICANT"**?

A5: Yes. I am familiar with said Application as I have participated in the preparation of said Application as well as its supporting documents.

Q6: What are the supporting documents that you prepared in relation to the Application?

A6: In connection with the Application, I prepared the following documents:

(1) Emergency CAPEX Project Information Summary with supporting documents: (i) Technical and Economic Analysis, (ii) Cost Estimates; (c) Expenditure Summary; (iii) Cost Benefit Analysis Calculation; and (iv) Gantt Chart, which were attached as Annex "A" of the Application.

2) Documents showing the results of tests conducted on Power Transformer Bank No. 6, which were attached as Annex "B" of the Application.

(The witness showed and identified the original copies of the above-mentioned documents to the counsel.)

Q7: What is the legal basis for filing of the instant Application?

A7: The Application is being filed pursuant to the Honorable Commission's Resolution No. 26, Series of 2009, entitled: "Resolution Amending the Rules for Approval of Regulated Entities' Capital Expenditure Projects." Emergency Capital Expenditure projects are those that require immediate implementation during an event that is not a force majeure or fortuitous event in order to maintain safe, reliable, secure and efficient operation of the power system.

Further, for purposes of recovering the capital cost of the emergency project through the DU's rates, the same will go through the process of evaluation by the Honorable Commission during the regulatory reset of the DU, unless there is basis for a

rate-reopening in the current regulatory period, in accordance with the Rules for the Setting of Distribution Wheeling Rates (RDWR) for DUs.

Q8: What is the emergency Capital Expenditure project that is subject of the instant Application?

A8: The emergency CAPEX project is for the replacement of the defective Balintawak Power Transformer Bank No. 6. The two main project components of the emergency project are as follows: (a) temporary installation of an 83 MVA, 115 kV–34.5 kV, three (3)-phase power transformer with NLTC; and (b) permanent installation of a new 83 MVA, 115 kV–34.5 kV, three (3)-phase power transformer with OLTC.

As a background, Balintawak Substation is located at Lot 1, EDSA, Brgy. Apolonio Samson, Balintawak District, Quezon City. The Power Transformer Banks in said substation are Power Transformer Banks Nos. 1, 2, 3 and 7, which have a rating of 230kV-115kV, and Power Transformer Bank Nos. 4, 5 and 6, which have a 115kV-34.5kV rating. However, Power Transformer Bank Nos. 4, 5 and 6 are only drawing power from Bank Nos. 1, 2, 3 and 7.

On 20 June 2016, Balintawak Power Transformer Bank No. 6 was tripped out by transformer differential relay through its lockout relay due to exploded secondary bushing (X3).

Thus, Applicant had to perform the following tests for the said power transformer:

- (a) On 21 June 2016, an initial test was conducted after replacing H1, H2, H3 and X3 bushings, secondary lightning arresters and insulators from both the transformer and 34.5kV switchgear which were damaged due to electric arc and shrapnel during explosion. The test results showed critical low insulation level between Primary Winding to Ground and between Secondary Winding to Ground. Optimistic that the said insulation value can still be improved the power transformer was subjected to hot-oil circulation from June 22 to June 26, 2016 so as to improve its performance and condition.
- (b) On 27 June 2016, final confirmatory electrical test was conducted. Based from the results of the tests, the power transformer was no longer safe to be energized and was declared for replacement due to the following significant findings: (a) High % Insulation Power Factor (IPF) on H-G and

X-G windings; (b) Increased in dielectric watts loss of H-G and X-G winding insulations; (c) Low insulation resistance on H-G and X-G windings; (d) Low insulation resistance between core and ground; and (e) Increased in primary excitation current in all phases as compared to the previous test results.

Q9: What was the impact of the failure of Balintawak Power Transformer No. 6 to the distribution system?

A9: The failure of said power transformer necessitated the transfer of its loads to other adjacent power transformers with 115kV-34.5kV. From June 20 to June 28, 2016, the loads of Balintawak Transformer Bank No. 6 were transferred to Balintawak 83 MVA Bank No. 5, Sta. Mesa 83 MVA Bank Nos. 5 and 7, Bagbaguin 83 MVA Bank No. 1, Diliman 83 MVA Bank No. 3, Kamuning 83-MVA Bank No. 2, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

The Banawe Substation was commissioned on 29 June 2016. , Banawe Power Transformer Bank was able to permanently accommodate at normal load level the portion of loads of Balintawak Transformer Bank No. 6 that were previously transferred to Sta. Mesa 83 MVA Bank Nos. 5 and 7, Bagbaguin 83 MVA Bank No. 1, Diliman 83 MVA Bank No. 3 and Kamuning 83-MVA Bank No. 2.

It is however necessary to temporarily shift the other remaining portion of loads of the Balintawak Power Transformer Bank No.6 to adjacent power transformers particularly, Balintawak 83 MVA Bank No. 5, Grace Park 83-MVA Bank No. 1 and Kaybiga 83-MVA Bank No. 2.

With such set-up, Balintawak Bank No. 5 at and Grace Park 83-MVA Bank No. 1 were operating at critical level at 78% and 72% respectively. With the critical loading of the said power transformers, any outage of these power transformers may result to prolonged and massive interruption in the affected areas. In particular, the same will adversely affect the supply of electricity to customers in said areas which include Universal Steel Smelting Corp., Inc., Trinoma North Triangle Depot Commercial Corp., Light Rail, Rectifier Substations and Manila Central University Hospital.

At the time of failure of Balintawak Power Transformer, there was no spare power transformer with OLTC. Applicant was also not able to install a new power transformer to replace Balintawak Power Transformer No. 6 since it would take a considerable length of time before the same can be purchased abroad. Thus,

the only immediate stop gap measure that can be undertaken was to use the available power transformer near the Balintawak Substation that was the 83 MVA power transformer with No-Load Tap Changer (NLTC).

However, said power transformer with NLTC was only temporarily installed pending the acquisition and installation of new Power Transformer with OLTC. There is still a need to replace the power transformer with NLTC considering that the same is incapable of providing flexibility for tying and carrying the feeder loads served by the adjacent power transformers. Hence, voltage regulation problems maybe experienced by customers and the load capacity of Power Transformer Bank No.6 may not be fully maximized for the benefit of customers. The new power transformer with OLTC will be subsequently installed given the said limitations of the currently installed power transformer with NLTC.

Q10: Why was there a need to implement the emergency project?

A10: The immediate implementation of the project was necessary for the following reasons:

(a) Balintawak Power Transformer Bank No.6 failed the above-mentioned tests. It was found defective and needed to be replaced;

(b) The failure of said power transformer necessitated the transfer of its loads to adjacent power transformers with 115kV-34.5 kV rating. Load shifting caused the Grace Park 83-MVA Bank No. 1 and Balintawak 83-MVA Bank No. 5 to be loaded above critical level. As such, an outage of the affected transformer banks would definitely result to power interruptions to customers in the areas. Shown below are the projected loadings of the affected power transformers with and without the replacement of Balintawak Power Transformer Bank No. 6.

Table 1: Without Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 5	78%
Loading of Grace Park 83-MVA Bank No. 1	72%
Loading of Kaybiga 83-MVA Bank No. 2	60%
System Loss	5,398,578 kWh

Table 2: With Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 6	46%
Loading of Balintawak 83-MVA Bank No. 5	53%
Loading of Grace Park 83-MVA Bank No. 1	59%
Loading of Kaybiga 83-MVA Bank No. 2	52%
System Loss	4,989,142 kWh

- a. As shown in the tables, the implementation of the project resulted to a lower system loss in the affected area at 4,989,142 kWh as compared to when the same is not implemented at 5,398,578 kWh;
- b. The temporary replacement power transformer with NLTC accommodated the loads of the failed power transformer. This prevented the load shifting to adjacent power transformers and consequently the critical loading of some of the Grace Park 83-MVA Bank No. 1 and Balintawak 83-MVA Bank No. 5; and
- c. The permanent replacement new power transformer with OLTC will address the limitations of the currently installed power transformer with NLTC such as voltage regulation problems. Also, said new power transformer can maximize its load capacity. Thus, this will ensure the reliability and quality of electric service to customers in the affected areas.

Q11: How much is the cost for the Emergency Project?

A11: The cost for the temporary installation of power transformer with NLTC is **Php 1,045,219.20**. The same includes the installation of the available 83-MVA, 115 kV – 34.5 kV, three-phase power transformer with NLTC and costs for transformer oil and trucking services. While the cost for permanent installation of power transformer is **Php 55,796,508.15**. This includes the cost of new 83-MVA, 115 kV – 34.5 kV, three-phase power transformer with OLTC and costs for transformer oil, taxes, duties, brokerage, trucking services and installation.

Thus, the total cost for the emergency replacement of power transformer in Balintawak Substation is **Fifty Six Million Eight**

Hundred Forty One Thousand Seven Hundred Twenty Seven Pesos and Thirty Five Centavos (PhP 56,841,727.35).

Q12: Can you tell us why you are executing this Judicial Affidavit?

A12: I am executing this Judicial Affidavit to attest to the truthfulness and veracity of the foregoing statements and in support of MERALCO's Application.

IN WITNESS WHEREOF, I have hereunto affixed my signature this AUG 26 2016 day of August 2016 at Pasig City, Philippines.


MARIO ANGELITO A. DELOS REYES
Affiant

Republic of the Philippines)
City of Pasig)S.S.

ATTESTATION

I, **CARMEN GRACE S. RAMOS**, of legal age, Filipino, with business address at 7th floor, Lopez Building Ortigas Avenue, Barangay Ugong, Pasig City after being duly sworn depose and say:

1. I conducted the direct examination of **ENGR. MARIO DELOS REYES**, the witness to testify on matters in support of the Application entitled **"IN THE MATTER OF THE APPLICATION FOR APPROVAL OF THE EMERGENCY REPLACEMENT OF POWER TRANSFORMER AT BALINTAWAK SUBSTATION,"** at the afore-mentioned business address;
2. I have faithfully recorded the questions asked and the corresponding answers that were given by the witness; and
3. Neither I nor any other person then present or assisting him coached the witness regarding his answers.

IN WITNESS WHEREOF, I have hereunto set my hand this AUG 26 2016th day of August 2016 at Pasig City.


CARMEN GRACE S. RAMOS
Affiant

SUBSCRIBED AND SWORN to before me this AUG 26 2016 day of August 2016 by affiant ENGR. MARIO DELOS REYES who showed his Passport ID with No. EC8059292, issued on June 17, 2016 at DFA Manila and ATTY. CARMEN GRACE S. RAMOS who exhibited her SSS ID with No. 3410973533.

Doc. No. 492 ;
Page No. 100 ;
Book No. III ;
Series of 2016.


ATTY. MONICA M. MARTIN
NOTARY PUBLIC
Pasig, Pateros, Taguig & San Juan
Issued on July 13, 2015 at Pasig City
until December 31, 2016
Roll No. 55693; IBP No. 1023726; 01/08/16; RSM Chapter
PTR No. 1473411; 01/21/16; Pasig City
7th Floor, Lopez Bldg., Ortigas Ave., Pasig City

SECRETARY'S CERTIFICATE

I, WILLIAM S. PAMINTUAN, a duly elected, qualified and incumbent Assistant Corporate Secretary of the Manila Electric Company (MERALCO), a corporation duly organized and existing under and by virtue of the laws of the Philippines, do hereby certify that:

At the regular meeting of the Board of Directors of the Company duly convened and held on February 23, 2015, at which meeting a quorum was present, acted throughout and voted, the following resolution amending the resolution of the Board on January 27, 2014 on the same subject, was approved and that said amendatory resolution is in full force and effect on the date hereof:

"RESOLVED, that the Board of Directors of the Manila Electric Company (MERALCO) authorize, as it hereby authorizes, Messrs. MANUEL V. PANGILINAN, Chairman, OSCAR S. REYES, President & Chief Executive Officer, SIMEON KEN R. FERRER, Corporate Secretary, ALFREDO S. PANLILIO, Senior Vice President, Head, Customer Retail Services and Head, Corporate Communication, RAMON B. SEGISMUNDO, Senior Vice President & Head, Human Resources & Corporate Services, ROBERTO R. ALMAZORA, Senior Vice President, RAFAEL L. ANDRADA, First Vice President & Treasurer, RUBEN B. BENOSA, First Vice President & Head, Corporate Logistics, Ms. IVANNA G. DELA PEÑA, First Vice President & Head, Regulatory Management Office, WILLIAM S. PAMINTUAN, First Vice President, Assistant Corporate Secretary, Compliance Officer and Head, Legal and Corporate Governance, RONNIE L. APEROCHO, First Vice President & Head, Networks, MARTHYN S. CUAN, Vice President & Head, Corporate Information and Technology, JOSE RONALD V. VALLES, Vice President and Head, Regulatory Affairs, MARIA ZARAH R. VILLANUEVA-CASTRO, Senior Assistant Vice President & Head, Corporate Legal Services, HORATIO ENRICO M. BONA, Assistant Vice President & Head, Litigation Team 2, RAUL G. CORALDE, Assistant Vice President & Head, Litigation Team 1, MICHELLE O. DELOS SANTOS-BONA, Assistant Vice President & Head, Legal Operations Support, EUGENE JUDE DENIS GERARD E. ALABANZA, Senior Manager & Head, Litigation Team 3, CORNELIO MANUEL C. DICCION, Manager & Legal Counsel, and any lawyer or employee of MERALCO that any of them may designate, name or appoint:

- (1) to represent the Company, in the institution, prosecution, and defense of any claim, complaint, action, proceeding, petition, application, protest, suit, or case, for or against the Company, before any court, prosecutor's office, regulatory, quasi-judicial, or administrative body, agency, or office of the national or any local government;
- (2) to sign, execute, and deliver in connection therewith the necessary or appropriate complaint, petition, application, position paper, memorandum, all types of pleadings and motions, verifications, affidavit-complaint, counter-affidavit, affidavit of merit, affidavit of desistance, affidavit of witness, and all other affidavits of whatever nature, certificate of non-forum shopping,

powers of attorney, certifications, and all other instruments as may be necessary or proper;

- (3) to represent the Company or to designate, name, and appoint a representative or an attorney-in-fact in behalf of the company during the investigation, inquest, preliminary investigation, preliminary conference, pre-trial, mediation, conciliation, arbitration, trial, execution, and all other stages of or incidents related to the case, proceeding or action; to negotiate, enter into, and agree to an amicable settlement, compromise agreement, plea bargaining, admissions or stipulations of fact or documents, simplification of issues, limitation on the number of witnesses, alternative modes of dispute resolution, withdrawal, dismissal or waiver of claim or action; and to perform and execute any and all actions or deeds as may aid in the prompt disposition of such cases, proceedings, or actions filed in behalf of or against the Company;

"RESOLVED, FURTHER, that any previous resolution of the Board of Directors on the same subject matter that is inconsistent herewith shall be deemed terminated, superseded and revoked."

Pursuant to the above resolutions, it is hereby certified that MERALCO is authorized to file the Application with the Energy Regulatory Commission (ERC) entitled "IN THE MATTER OF THE APPLICATION FOR APPROVAL OF THE EMERGENCY REPLACEMENT OF ONE (1) 83 MVA POWER TRANSFORMER AT BALINTAWAK SUBSTATION," and that Atty. JOSE RONALD V. VALLES, Vice President and Head, Regulatory Affairs, is an authorized representative and signatory of the Company with respect to the aforesaid application.

WITNESS THE SIGNATURE of the undersigned as such officer of the Company and its corporate seal hereunto affixed on this AUG 26 2016 day of August 2016.


WILLIAM S. PAMINTUAN
Assistant Corporate Secretary

SUBSCRIBED AND SWORN to before me this AUG 26 2016 day of August 2016, affiant exhibited to me his Taxpayer Identification Number (TIN) 146-473-562, issued by the Bureau of Internal Revenue (BIR) as his competent evidence of identity.

Doc. No. 249;
Page No. 51;
Book No. IV;
Series of 2016.


ATTY. CARMEN GRACE S. RAMOS
NOTARY PUBLIC
Pasig, Pateros, Taguig & San Juan
Issued on July 13, 2015 at Pasig City
until December 31, 2016
Roll No. 55945; IBP No. 1023723; 01/08/16; RSM Chapter
PTR No. 1473409; 01/21/16; Pasig City
7th Floor, Lopez Bldg., Ortigas Ave., Pasig City

CHEVROLET SUBURBAN

POWERED BY EXCELLENCE.

There is no substitute for the commanding presence of this iconic nameplate. The Chevrolet Suburban is a symbol of heritage, prestige and class. Complemented by technological advancements that reward you with more comfort, power and luxury.

NOW AVAILABLE AT YOUR NEAREST CHEVROLET DEALER

FIND ME ON ROADS

Log on to www.chevrolet.com.ph for the complete list of features

f Chevy Philippines
Facebook is a registered trademark of Facebook, Inc.

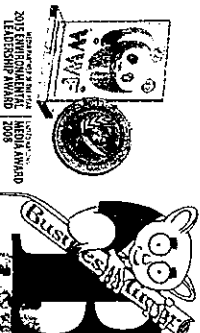
@ Chevy Philippines

Photo may vary from actual unit.



CHEV
5 YEAR
WARRANTY
EXCLUSIVITY

CHEVROLET



BusinessMirror

ISSN 1308-1139
9 170190 61892

Now the No. 1 Daily Business Newspaper in the Philippines

A broader look at today's business

Monday, August 29, 2016 Vol. 11 No. 324

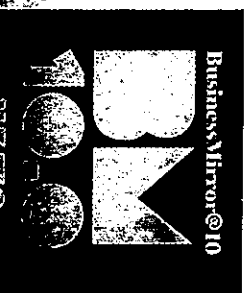
P25.00 NATIONWIDE | 5 SECTIONS 36 PAGES | 7 DAYS A WEEK

Congress eyes experts to help amend Charter

By JOVEE MARIE N. DELA CRUZ @joveemarie

CONSTITUTIONAL

A Commission (Con-com) sought to help Congress amend the Constitution is seen drafting the proposed amendments by September.



30 min

The maximum number of legal experts the President can

Depersonalizing and 'anti-epalizing' PPP projects



PPP lead

Alberto C. Agra

TAKE you seen government

Japan's Abe dangles \$30B to Africa leaders in Nairobi

JAPAN will invest \$30 billion to boost Africa's economic growth and infrastructure over the next three years, Prime Minister Shinzo Abe said, as he sought to win over national leaders already being wooed by China and the United States.

The Asian economy's planned investment in the continent of 1.2 billion people shows it has "faith in Africa's future," Abe told the heads of states gathered in Kenya's capital, Nairobi, for the sixth Tokyo International Conference on African Development.

Thirty-four heads of state from across the 54-nation continent, including those from South Africa, Nigeria, Ivory Coast and Uganda, are attending the high-level gathering being held outside Japan for the first time. The amount pledged includes private-sector investment and \$11 billion left over from a \$32-billion commitment made at the previous meeting in 2013.

In pledging more support, Japan is competing for influence in the continent with the US, China and former European colonial powers, such as Britain and France. China, whose investments in sub-Saharan nations have increased fortyfold since 2003, pledged \$60 billion for the continent at a similar summit by President Xi Jin in South Africa last year.

The money was to be spent on interest-free loans, preferential financing and funding to support development. The US, on the other hand, said it would give \$14 billion at the US-Africa Leaders Summit in 2014.

Free trade
ABOUT \$10 billion of Japan's planned investment is earmarked for electricity-

Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City

IN THE MATTER OF THE
APPLICATION FOR APPROVAL
OF THE EMERGENCY
REPLACEMENT OF ONE (1) 83-
MVA POWER TRANSFORMER
AT BALINTAWAK SUBSTATION,

ERC CASE NO. _____

MANILA ELECTRIC COMPANY
(MERALCO),

Applicant.

APPLICATION

Applicant, MANILA ELECTRIC COMPANY (MERALCO), through the undersigned counsel, and to this Honorable Commission, most respectfully avers that:

1. Applicant is a private corporation duly organized and existing under the laws of the Republic of the Philippines, with principal office located at Lopez Building, Ortigas Avenue, Barangay Ugong, Pasig City. It may be served with notices and other processes of this Honorable Commission through its undersigned counsel at the address indicated herein.

2. Applicant has a legislative franchise to construct, operate and maintain an electric power distribution system for the conveyance of electric power to the end-users in the cities and municipalities of Metro Manila, Bulacan, Cavite and Rizal, and certain cities/municipalities/barangays in Batangas, Laguna, Quezon and Pampanga, pursuant to Republic Act No. 9209.

3. Applicant seeks the Honorable Commission's approval of its emergency CAPEX project for the replacement of the defective Balintawak Power Transformer Bank No. 6.

4. The two main project components of the emergency project are: (a) temporary installation of an 83-MVA, 115 kV-34.5 kV, three (3)-phase power transformer with NLTC; and (b) permanent installation of a new 83-MVA, 115 kV-34.5 kV, three (3)-phase power transformer with OLTC.

5. The Application is filed pursuant to the Honorable Commission's Resolution No. 26, Series of 2009, entitled "Resolution Amending the Rules for Approval of Regulated Entities' Capital Expenditure Projects". Emergency Capital Expenditure projects are those that require immediate implementation during an event that is not a force majeure or fortuitous event in order to maintain safe, reliable, secure and efficient operation of the power system.

6. However, for purposes of recovering the capital cost of the emergency project through the DU's rates, the same will go through the process of evaluation by the Honorable Commission during the regulatory reset of the DU, unless there is basis for a rate-reopening in the current regulatory period, in accordance with the Rules for the Setting of Distribution Wheeling Rates (FDWR) for DUs.

BACKGROUND

7. The Balintawak Substation is located at Lot 1, ED5A, Brgy. Apolonio Sanson, Balintawak District, Quezon City. The Power Transformer Banks in said substation are Power Transformer Banks Nos. 1, 2, 3 and 7, which have a rating of 230kV-115kV, and Power Transformer Bank Nos. 4, 5 and 6, which have a 115kV-34.5kV rating. However, Power Transformer Bank Nos. 4, 5 and 6 are only drawing power from Bank Nos. 1, 2, 3 and 7.

8. On 20 June 2016, Balintawak Power Transformer Bank No. 6 was tripped out by transformer differential relay through its lockout relay due to exploded secondary bushing (X3).

9. On 21 June 2016, the power transformer was immediately subjected to initial test after replacing H1, H2, H3 and X3 bushings, secondary lightning arresters and insulators from both the transformer and 34.5kV switchgear which were damaged due to electric arc and shrapnel during explosion. The test results showed critical low insulation level between Primary Winding to Ground and between Secondary Winding to Ground. As a remedial measure, the power transformer was subjected to hot-oil circulation from June 22 to June 26, 2016 so as to improve its performance and condition.

Table 2: With Project

Transformer Under Consideration	
Loading of Balintawak 83-MVA Bank No. 6	48%
Loading of Balintawak 83-MVA Bank No. 5	53%
Loading of Grace Park 83-MVA Bank No. 1	59%
Loading of Kaybiba 83-MVA Bank No. 2	52%
System Loss	4,989,142 kWh.

18. In view of the foregoing, there is a need to implement the emergency project for replacement of 83-MVA Power Transformer in Balintawak substation.

19. The cost for the temporary installation of power transformer with NLTC is Pnp 1,045,219,20. The same includes the installation of available 83-MVA, 115 kV - 34.5 kV, three-phase power transformer with NLTC and costs for transformer oil and trucking services. While the cost for permanent installation of power transformer is Pnp 55,796,508.15. This includes the cost of new 83-MVA, 115 kV - 34.5 kV, three-phase power transformer with OLTC and costs for transformer oil, taxes, duties, brokerage, trucking services and installation.

20. Thus, the total cost for the emergency replacement of power transformer in Balintawak Substation is Fifty Six Million Eight Hundred Forty One Thousand Seven Hundred Twenty Seven Pesos and Thirty Five Centavos (Pnp 56,841,727.35).

21. In further support of the Application, attached hereto are the following documents:

- Annex "A" - Emergency CAPEX Project Information Summary with supporting documents: (i) Technical and Economic Analysis; (ii) Cost Estimates; (c) Expenditure Summary; (iii) Cost Benefit Analysis Calculation; and (iv) Gantt Chart;
- Annex "B" - Documents showing the results of tests conducted on Power Transformer Bank No. 6; and
- Annex "C" - Judicial Affidavit of Engr. Mario delos Reyes, Manager and Head of Applicant's Substation Services Asset Management Office.

PRAYER

WHEREFORE, it is respectfully prayed to this Honorable Commission that the Applicant's emergency replacement of power transformer at the Balintawak Substation be APPROVED.

Other relief just and equitable under the premises are likewise prayed for.

Pasig City, 26 August 2016.

MANILA ELECTRIC COMPANY

Applicant

Barangay Ugong, Pasig City
Lopez Building,
Ortigas Avenue.

Francis Dingo S. Antonio
Counsel for Applicant

Roll of Attorneys No. 48145
PTR No. 1473407, 01/21/16; Pasig City
IBP No. 1023724, 01/08/16; RSM
MCLE Compliance No. VAD04566; 6 November 2014

HAZEL ROSE B. SEE

Counsel for Applicant
Roll of Attorneys No. 48265

PTR No. 1473408; 01/21/16; Pasig City
IBP LRN No. 06460; 1/16/07; QC
MCLE Compliance No. VI-0000255; 11 July 2016

Germany warns UK: Brexit talks will be very difficult

GERMAN Deputy Foreign Minister Michael Roth warned that the United Kingdom's negotiations to leave the European Union (EU) "will be very difficult" and that Britain won't be allowed to "cherry pick" the best that the bloc has to offer.

"If the British want full market access but want to limit the access of workers from Germany, France or Poland, they will find there is no la carte cooperation in this direction," Roth, the government minister responsible for European affairs, said at a Berlin event on Saturday. "We've told the British they can't expect to pick the best aspects of the EU and leave matters at that."

Germany is taking a leading role, with Chancellor Angela Merkel having spent the week canvassing opinion across Europe ahead of an EU summit without Britain. She cited the twin challenges of security and economic growth, as leaders prepare to meet in the Slovak capital of Bratislava on September 16.

Merkel, the leader of Europe's biggest economy, began the week of shuttle diplomacy by meeting French President Francois Hollande and Italian Prime Minister Matteo Renzi. She then headed to the Estonian capital of Tallinn, Prague

and Warsaw before two more rounds of talks with fellow EU leaders in Berlin on Friday and Saturday. "People will accept Europe only if it holds out the promise of prosperity," Merkel told reporters on Friday in Warsaw. "Britain's exit isn't just some event, but rather a deep watershed in the history of EU integration."

During her tour, Merkel faced pressure from eastern European countries to tighten barriers against migration, exposing differing priorities as the EU seeks to map the way forward after Britain's vote in June to leave the 28-member bloc.

Romania and Poland's leaders said on Saturday at a joint news conference that the countries agreed their priority in negotiations with the UK is to make sure EU citizens, including Poles and Romanians living in UK, keep their jobs and rights after Brexit talks conclude.

The EU has said negotiations with the UK won't start until Britain formally declares its intentions to leave the bloc. Roth said Germany is hopeful that Prime Minister Theresa May's government will "send us the letter soon" so that Brexit discussions can begin, acknowledging that there is "no blueprint in the drawer" on a way forward. *Bloomberg News*

Defense witnesses testify in trial of Brazil's prexy

SAO PAULO.—Brazilian senators on Saturday questioned the last two witnesses summoned by the defense for President Dilma Rousseff in her impeachment trial for allegedly breaking fiscal rules in the management of the federal budget.

In the third day of deliberations, senators questioned former Finance Minister Nelson Henrique Barbosa and Rio de Janeiro State University law professor Ricardo Lodi.

Several days of debate, including an address by Rousseff on Monday, will culminate in a vote on whether to permanently remove her from office.

The Senate voted in May to impeach and suspend her for up to 180 days while the trial could be prepared.

Vice President Michel Temer took over

Secondary Winding to Ground. As a remedial measure, the power transformer was subjected to hot-oil circulation from June 22 to June 26, 2016 so as to improve its performance and condition.

10. On 27 June 2016, final confirmatory electrical test was conducted. Based from the results of the tests, the power transformer was no longer safe to be energized and was declared for replacement due to the following significant findings: (a) High % Insulation Power Factor (IPF) on H-G and X-G windings; (b) Increased in dielectric watts loss of H-G and X-G winding insulations; (c) Low insulation resistance on H-G and X-G windings; (d) Low insulation resistance between core and ground; and (e) Increased in primary excitation current in all phases as compared to the previous test results.

11. Accordingly, from 20 June to 28 June 2016, the loads of Balintawak Transformer Bank No. 6 had to be transferred to adjacent power transformers with 115KV-34.5KV rating namely, Balintawak 83-MVA Bank No. 5, Sta. Mesa 83-MVA Bank Nos. 5 and 7, Bagbaguin 83-MVA Bank No. 1, Dilliman 83-MVA Bank No. 3, Kamuning 83-MVA Bank No. 2, Grace Park 83-MVA Bank No. 1 and Kaybiya 83-MVA Bank No. 2.

12. However, when Banawe Substation was commissioned on 29 June 2016, Banawe power transformer bank was able to permanently accommodate at normal load level the portion of loads of Balintawak Transformer Bank No. 6 that were previously transferred to Sta. Mesa 83-MVA Bank Nos. 5 and 7, Bagbaguin 83-MVA Bank No. 1, Dilliman 83-MVA Bank No. 3, Kamuning 83-MVA Bank No. 2.

13. Nonetheless, there was still a need to temporarily shift the other remaining portion of loads of the Balintawak Power Transformer Bank No. 6 to adjacent power transformers particularly, Balintawak 83-MVA Bank No. 5, Grace Park 83-MVA Bank No. 1 and Kaybiya 83-MVA Bank No. 2.

14. With such a set-up, Balintawak Bank No. 5 at and Grace Park 83-MVA Bank No. 1 were operating at critical level at 78% and 72% respectively. With the critical loading of the said power transformers, any outage of these power transformers may result to prolonged and massive interruption in the affected areas. In particular, the same will adversely affect the supply of electricity to customers in said areas which include Universal Steel Smelting Corp., Inc., Tinoma North Triangle Depot Commercial Corp., Light Rail Rectifier Substations, Maynilad and Manila Central University Hospital.

15. Considering the adverse effect of shifting the loads of said failed power transformer to the adjacent power transformers, a stop gap measure had to be undertaken. Hence, Applicant was constrained to use an available 83-MVA Power Transformer with No-Load Tap Changer (NLTC) to temporarily replace the defective transformer, pending the acquisition of a new power transformer with OLTC from abroad. The temporary replacement power transformer was energized on 10 July 2016.

16. However, there is a need to replace the power transformer with NLTC with a new power transformer with OLTC considering that the same is incapable of providing flexibility for tying and carrying the feeder loads served by the adjacent power transformers. Hence, voltage regulation problems may be experienced by customers and the load capacity of Power Transformer Bank No. 6 may not be fully maximized for the benefit of customers. The new power transformer with OLTC will be subsequently installed given the limitations of the currently installed power transformer with NLTC. This will ensure the reliability and quality of electric service to customers in the affected areas.

17. Shown below are the projected loadings of the affected power transformers with and without the replacement of the defective Balintawak Power Transformer Bank No. 6.

Table 1: Without Project

Parameter Under Consideration	
Loading of Balintawak 83-MVA Bank No. 5	78%
Loading of Grace Park 83-MVA Bank No. 1	72%
Loading of Kaybiya 83-MVA Bank No. 2	60%
System Loss	5,398,578 kWh

MONICA M. MARTIN
Counsel for Applicant
Roll of Attorneys No. 55693
PTR No. 1473411; 01/21/16; Pasig City
IBP No. #123726; 01/08/16; RSM
MCLE Compliance No. VI-0000239; 11 July 2016
7th Floor, Lopez Building
Ortigas Avenue, Barangay Ugnong, Pasig City
Tel. no. 1622-2260; Fax No. 1622-3550
Email: regulatory.legal.staff@meralco.com.ph
Republic of the Philippines) S.S.
City of Pasig

VERIFICATION AND CERTIFICATION ON NON-FORUM SHOPPING

I, **JOSE RONALD V. VALLES**, Filipino, of legal age, married, with office address at 7th Floor, Lopez Building, MERALCO Compound, Ortigas Avenue, Pasig City, after being sworn in accordance with law, hereby depose and say that—

1. I am the Vice President and Head, Regulatory Affairs Office, of Applicant Manila Electric Company (MERALCO). In such capacity, I have caused the preparation and filing of the foregoing Application;

2. Moreover, I have been authorized by the Board of Directors of MERALCO to certify that Applicant has not heretofore filed any similar action, pleading or application involving the same issues before the Supreme Court, the Court of Appeals or any other lower courts or administrative bodies. A copy of the Secretary's Certificate authorizing me to cause the preparation of the instant Application and sign this Verification and Certification is attached hereto as ANNEX "D";

3. I have read and understood the allegations contained therein and the same are true and correct based on my personal knowledge and authentic records made available to me in the ordinary course of business of MERALCO;

4. To the best of my knowledge, no similar action or proceeding is pending before the Supreme Court, the Court of Appeals, the lower courts or administrative bodies;

5. If I should hereafter learn that a similar action has been filed before the Supreme Court, the Court of Appeals, the lower courts or administrative bodies, I undertake to report such fact to this Honorable Commission within five (5) days from notice of such fact.

IN WITNESS WHEREOF, I have hereunto affixed my signature this 25th day of August 2016 at Pasig City, Philippines.


JOSE RONALD V. VALLES
Affiant

SUBSCRIBED and SWORN to before me this 25th day of August 2016, affiant having exhibited to me his Societ Security System ID bearing the number 33-10900088.

Doc. No. 250
Page No. 5
Book No. 12
Series of 2016.



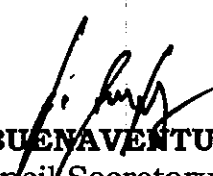
Republic of the Philippines
SANGGUNIANG PANLUNGSOD
City Government of Pasig

ACKNOWLEDGMENT

This is to acknowledge the receipt of a copy of Manila Electric Company's (MERALCO) verified Application entitled "IN THE MATTER OF THE APPLICATION FOR APPROVAL OF EMERGENCY REPLACEMENT OF ONE (1) 83-MVA POWER TRANSFORMER AT BALINTAWAK SUBSTATION," with **attached Annexes**, served by MERALCO, prior to its filing with the Energy Regulatory Commission (ERC).

This acknowledgment is being issued upon the request of MERALCO for whatever legal intents and purposes it may served.

Issued this **31st** day of **August 2016** at Pasig City.


REYNALDO R. SAN BUENAVENTURA III
Acting City Council Secretary

/yhe2016



Republic of the Philippines
OFFICE OF THE CITY SECRETARY
Quezon City



**CERTIFICATE OF ACKNOWLEDGEMENT
AND POSTING**

This is to certify that the **APPLICATION** dated 26 August 2016 of the Energy Regulatory Commission relative to unnumbered ERC Case entitled:

**"IN THE MATTER OF THE APPLICATION FOR APPROVAL
OF THE EMERGENCY REPLACEMENT OF ONE (1) 83-
MVA POWER TRANSFORMER AT BALINTAWAK
SUBSTATION**

MANILA ELECTRIC COMPANY (MERALCO),
Applicant"

was received by this office on 31 August 2016 and the said Application were posted at the Bulletin Board of the Quezon City Council on the same date and will remain thereat for a period of 15 days.

This certification is issued upon the request of Manila Electric Company for whatever legal purpose it may serve.

Quezon City, 31 August 2016.


ATTY. JOHN THOMAS S. ALFEROS III
OIC – City Secretary

MV/che

Ground Floor, Quezon City Hall
Tel. Nos. 9884242 local 8313 to 8315 / 8334 to 8336



STATEMENT OF ACCOUNT

ENERGY REGULATORY COMMISSION
http://www.erc.gov.ph
Pacific Center Building
San Miguel Ave, Pasig City
Phone 689-5372 loc.5378 Fax 638-4519

STATEMENT NO : 2016-SCMD-2786

BILL TO : MERALCO
Ortigas, Pasig City

DATE ISSUED : September 01, 2016
DUE DATE : September 06, 2016

PARTICULARS	AMOUNT
Application for Approval of the Emergency Replacement of One (1) 83 MVA Power Transformer at Balintawak Substation(Revenue Code: 4-02-01-010)	700.00
J.P.L.R.F.(Revenue Code: 4-02-01-010)	10.00
TOTAL AMOUNT (Php)	710.00

SEVEN HUNDRED TEN PESOS

Approved by:
ATTY. ALFREDO P. VERGARA JR.
OIC, LEGAL SERVICE

Approved by:
ATTY. FLORESINDA B. DIGAL
DIRECTOR III, ROS

OKA 0008099
9.1.16

Attested by:
ZYWEEN A. SEVILLEN
BILLING SECTION

ACCOUNTABLE FORM No. 51 (ORIGINAL)
Revised January, 1992

Official Receipt
of the
Republic of the Philippines

0008099
No. 0008099
Date 9/1/2016

Agency ENERGY REGULATORY COMMISSION
Payor MERALCO
Fund

Nature of Collection	Account Code	Amount
Filing Fee	4-02-01-130	₱ 700.00
UPLRF	2-99-99-999	10.00
2016-SCMD-2786 TOTAL		₱ 710.00

Amount in Words seven hundred ten pesos only

☒ Cash
☐ Check
☐ Money Order

Drawee Bank
Number
Date

Received the amount stated above.

MILA A. MIRANDA
Cashier II
Collecting Officer

NOTE: Write the number and date of this receipt on the back of check or money order received.