

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. 2016-166 RC**

**MANILA ELECTRIC  
COMPANY (MERALCO),  
Applicant.  
X-----X**

**D O C K E T E D**  
Date: MAR 20 2017  
By: [Signature]

**NOTICE OF PUBLIC HEARING**

**TO ALL INTERESTED PARTIES:**

Notice is hereby given that on 01 September 2016, Manila Electric Company (MERALCO) filed an *Application* seeking the Commission's approval of its plan to replace one of its 83 MVA power transformer in MERALCO's Balintawak Substation.

MERALCO, likewise, alleged the following in its *Application*:

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 k W h

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 k W h

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

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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.

The Commission has set the said *Application* for determination of compliance with the jurisdictional requirements, expository presentation, Pre-trial Conference, and presentation of evidence on **24 May 2017 at one o'clock in the afternoon (1:00 P.M.), at the ERC Hearing Room, 15<sup>th</sup> Floor, Pacific Center, San Miguel Avenue, Pasig City.**

All persons who have an interest in the subject matter of the instant case may become a party by filing with the Commission a verified Petition to Intervene at least five (5) days prior to the initial hearing and subject to the requirements under Rule 9 of the 2006 Rules of Practice and Procedure, indicating therein the docket number and title of the case and stating the following:

- i. The petitioner's name and address;
- ii. The nature of petitioner's interest in the subject matter of the proceeding and the way and manner in which such interest is affected by the issues involved in the proceeding; and

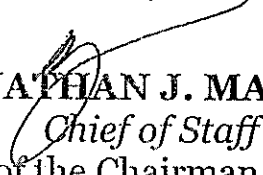
iii. A statement of the relief desired.

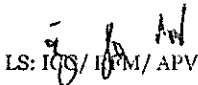
All other persons who may want their views known to the Commission with respect to the subject matter of the case may file their Opposition or Comment thereon at any stage of the proceeding before Applicants rest their case, subject to the requirements under Rule 9 of the 2006 Rules of Practice and Procedure. No particular form of Opposition or Comment is required, but the document, letter, or writing should contain the following:

- 1) The name and address of such person;
- 2) A concise statement of the Opposition or Comment; and
- 3) The grounds relied upon.

All such persons who wish to have a copy of the *Application* may request from Applicants that they be furnished with the same, prior to the date of the initial hearing. Applicants are hereby directed to furnish all those making such request with copies of the *Application* and its attachments, subject to the reimbursement of reasonable photocopying costs. Any such person may likewise examine the *Application* and other pertinent records filed with the Commission during the standard office hours.

**WITNESS**, the Honorable Chairman **JOSE VICENTE B. SALAZAR**, and the Honorable Commissioners **ALFREDO J. NON**, **GLORIA VICTORIA C. YAP-TARUC**, **JOSEFINA PATRICIA A. MAGPALE-ASIRIT**, and **GERONIMO D. STA. ANA**, Energy Regulatory Commission, this 6<sup>th</sup> day of March 2017 at Pasig City.

  
**ATTY. NATHAN J. MARASIGAN**  
*Chief of Staff*  
Office of the Chairman and CEO

  
LS: ICS/ICM/APV